Annex 18 Annual Technical Cooperation Program (ATCP)

lectures | hands-on Training | Dispatch of S/E | C/P Training in Japan

Calendar Year	1999												2000												2001		
Technology Transfer Item / Japanese Fiscal Year	1999												2000														
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			
			Signing of the R/D																								
Term of Technical Cooperation				▼																							
PO 2-2 Implement Technology Transfer to the C/P																											
0 Fundamentals (common items)																											
0.1 Precondition for mold technology																											
(1) General engineering drawings																											
a Design standards.																											
b Method of section																											
(2) Properties of plastic																											
a Types and characteristics																											
b Forming methods.																											
(3) Fundamentals of steel for mold																											
a General steel																											
b Special steel																											
(4) Fundamentals of metal processing																											
a Fundamentals of cutting																											
b Fundamentals of EDM processing																											
c Functions of processing equipment																											
(5) Fundamentals of plastic injection																											
a Outline of injection molding machine																											
(a)Mold clamping mechanism																											
(b)Injection mechanism																											
b Injection molding process for thermoplastics																											
0.2 Principles of injection mold																											
(1) Primary injection mold																											
(what is mold?. industrial standard etc.)																											
a what is a mold																											
b Industrial standard																											
(2) Name and function of components																											
(guide pin,locate ring etc.)																											
a Components of the two plate mold																											
b Components of the three plate mold																											
(3) Name and function of mold elements																											
(runner, gate etc.)																											
a Runner-basic configuration																											
b Gate-basic configuration, advantages																											
and disadvantages																											
0.3 Mold design Standard																											
(1) Name and function of molded products																											
a Boss ejector system and mold design																											
b Rib ejector system and mold design																											
(2) Determination of injection condition																											
a Calculation of injection volume(weight)																											
into designed mold																											
b Calulation of clamping force for design mold																											
c Design mold dimensions and injection																											
molding machine specifications																											
(3) Process from product model to mold design																											
a Methods of product model design																											
b Reflecting study in mold design																											
(4) Layout of basic mold																											
a General design																											
b Special design																											
(5) Design of molded product																											
a Molded product design																											
(a)Undercut																											
(b)Draft angle																											
b Quality of manufactured goods																											
(a)Dimensional tolerance																											
(b)P.L code																											
(c)U.L code																											

Annex 18 Annual Technical Cooperation Program (ATCP)

lectures ## hands-on Training = Dispatch of S/E ||| C/P Training in Japan

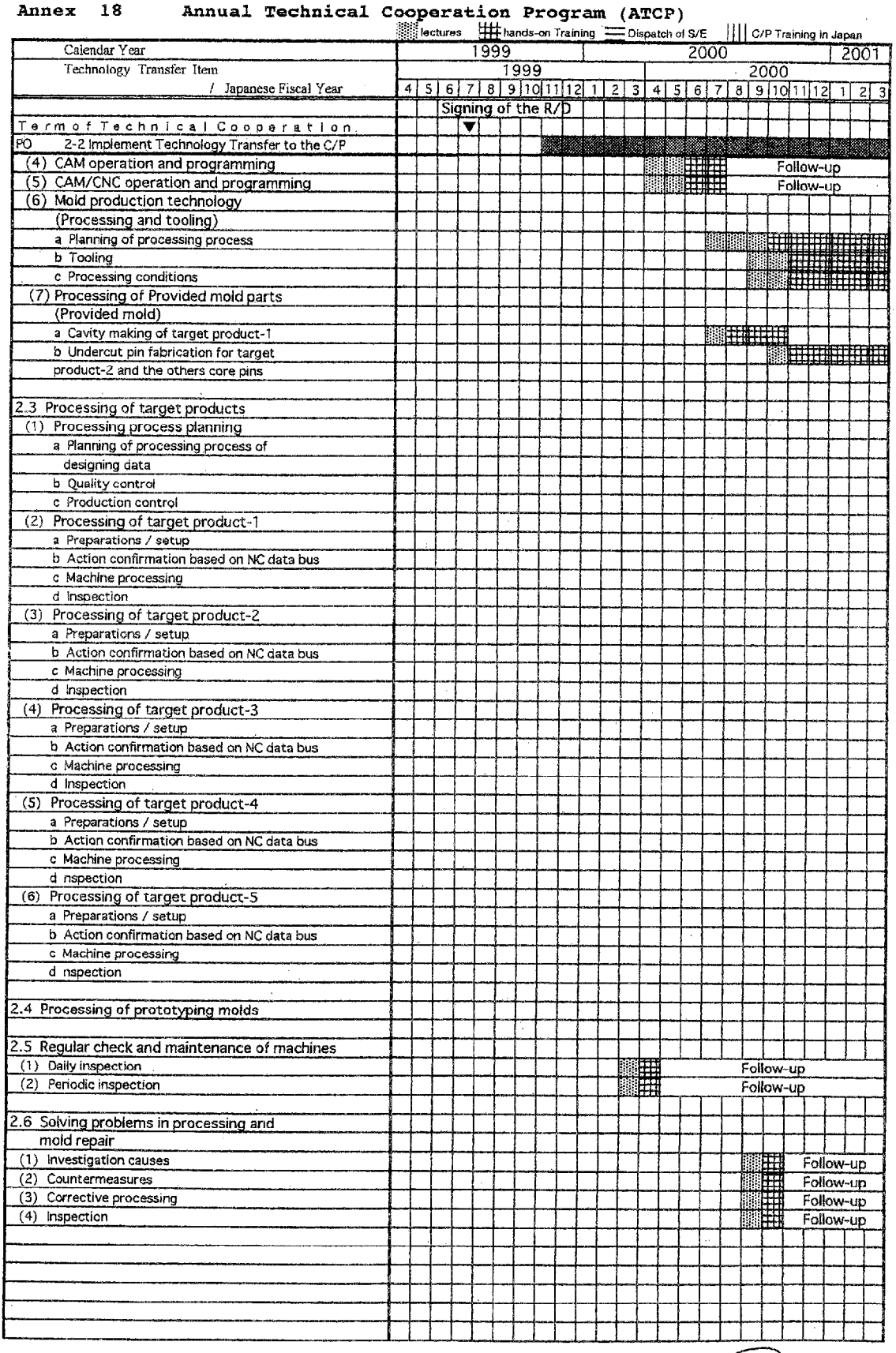
Calendar Year	1999												2000												2001		
Technology Transfer Item / Japanese Fiscal Year	1999												2000														
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			
			Signing of the R/D																								
Term of Technical Cooperation			▼																								
PO 2-2 Implement Technology Transfer to the C/P																											
c Mold shrinkage																											
(Thickness of forming material and																											
molded product)																											
d Plastics flow																											
(Fluid ratio [Length/thickness] at injection pressure P)																											
(6) Design of mold standard parts																											
a Standerd parts																											
b Selection and design of standard parts																											
(7) Undercut																											
a Types of undercut method																											
b Selection of undercut method																											
(8) Fundamental design using target																											
product-1(pen tray)																											
a Required function of the product																											
b Specification mold design																											
0.4 Fundamentals of mold processing and																											
plastic injection molding																											
(1) Mold processing																											
a Mold processing methods																											
b Mold processing conditions																											
(2) Plastic injection molding																											
a Three factor of molding																											
(a)Mold																											
(b)Molding machine																											
(c)Material resin																											
b Thrae principles of molding																											
(a)Temperature																											
(b)Pressure																											
(c)Cycle																											
0.5 Fundamentals of computer																											
(1) Computer operation																									Follow-up		
(2) Operation of CAD, CAM and CAD/CAM																											
1 Injection mold design																											
1.1 Fundamentals of mold design																											
(1) Usage of the applications for Mold layout																											
(2) How to design target product-1																											
(Pen Tray)																											
a Molded product																											
b Specification of mold design																											
(3) How to design target product-2																											
(Front Case for Alarm Clock)																											
a Molded product																											
b Specification of mold design																											
(4) Common use of parts and standardization																											
of common parts																											
a Objectives																											
b Specification																											
(5) Mold design based on prediction																											
a Predicted product defects																											
b Countermeasures for predicted product																											
defects																											
1.2 Mold design by CAD/CAM																											
(1) Techniques of CAD.CAM and CAD/CAM																											
a CAD																											
b CAM																											
c Linking between CAD and CAM																											
(2) Guidance by each CAD/CAM software																											
makers for mold making																											

Annex 18 Annual Technical Cooperation Program (ATCP)

lectures | hands-on Training | Dispatch of S/E | C/P Training in Japan

Calendar Year	1999												2000												2001		
Technology Transfer Item / Japanese Fiscal Year	1999												2000														
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			
			Signing of the R/D																								
Term of Technical Cooperation			▼																								
PO 2-2 Implement Technology Transfer to the C/P																											
(3) Exchange of CAD/CAM network data															follow-up												
(4) Computer programming																											
(5) CAD/CAM operation and mold design (2-dimension/2.5D/3D)																											
a Specification of CAD/CAM operation																											
b Specification of CAD/CAM operation in mold design																											
(6) Design of target product-1 by CAD (Pen Tray)																											
a Molded product																											
b Specification of mold design																											
(7) Design of target product-2 by CAD (Front Case for Alarm Clock)																											
a Molded product																											
b Specification of mold design																											
(8) Design of target product-3 by CAD (Front Panel for Personal Computer)																											
a Molded product																											
b Specification of mold design																											
(9) Design of target product-4 by CAD (Upper Case for Telephone)																											
a Molded product																											
b Specification of mold design																											
(10) Design of target product-5 by CAD (Camera Body)																											
a Molded product																											
b Specification of mold design																											
1.3 Design of prototyping molds (for requirements of model companies etc.)																											
1.4 Solve problem after trial shot (Problems and solution of injection molding assembly)																											
(1) Comparing molded product dimensions with design dimensions																											
(2) Comparing design dimensions with mold component dimension																											
2 Injection mold processing																											
2.1 Fundamentals of processing																											
(1) Cutting theory																											
a Milling																											
b Lathe																											
c Grinding																											
(2) EDM Processing theory (Edit of CAD/CAM/CNC data)																											
a Deisinking electric discharge machine															Follow-up												
b Wirecut electric discharge machine															Follow-up												
c Small hole EDM machine															Follow-up												
(3) Inspection and measurement																											
a 3D measurement data															Follow-up												
b General measurement data															Follow-up												
2.2 Operation and function of processing machinery																											
(1) Operation and function of conventional machinery															Follow-up												
(2) Operation and function of MC machinery																											
(3) Operation and function of CNC machinery (EDM, WEDM etc.)																											

Annex 18 Annual Technical Cooperation Program (ATCP)



Annex 18 Annual Technical Cooperation Program (ATCP)

lectures | hands-on Training | Dispatch of S/E | C/P Training in Japan

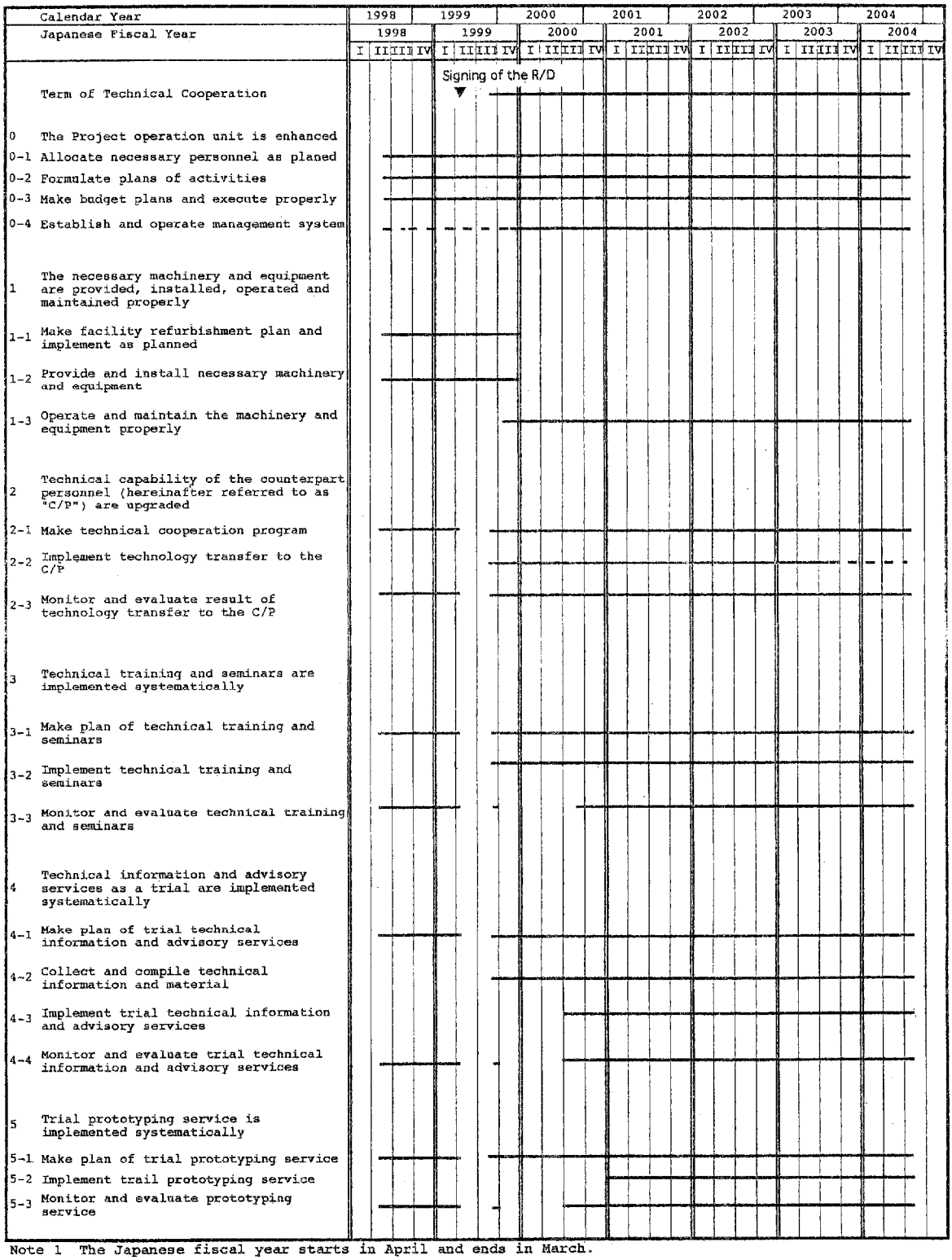
Calendar Year	1999												2000												2001		
Technology Transfer Item / Japanese Fiscal Year	1999												2000														
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			
	Signing of the R/D																										
Term of Technical Cooperation	▼																										
PO 2-2 Implement Technology Transfer to the C/P																											
3 Mold assembling, maintenance and trial shot of injection molding																											
3.1 Fundamentals of finishing																											
(1) Lapping process																											
(2) Lapping standard of cavity side																									Follow-up		
(3) Lapping standard of core side																									Follow-up		
3.2 Fundamentals of mold assembly																											
(1) Mold assembling																											
a Comparison of mold base with mold assembling drawing																									Follow-up		
b Checking of standard parts and assembling components																									Follow-up		
(2) Trial shot process																											
a Mold fitting procedure																											
(a)Toggle mold clamp																									Follow-up		
(b)Direct pressure mold clamp																									Follow-up		
b Material replacement procedure																									Follow-up		
c Matrial drying conditions (temperature, time)																									Follow-up		
d Conversion of molding conditions (shot volume, injection pressure)																									Follow-up		
e Setting mold temperature by type of resin and cooling circuit																									Follow-up		
(3) Process of disassembling and assembling of standard parts																									Follow-up		
(4) Trial assembling																									Follow-up		
3.3 Trial shot of mold																											
(1) Preparation and check of mold specification (Comparison of mold dimensions with molding machine specification)																									Follow-up		
(2) Setting conditions according to sample data																											
(3) Moving check on mold attached to injection machine																											
a Setting of mold open stroke																									Follow-up		
b Setting of ejector stroke																									Follow-up		
c Confirmation of slide core action																									Follow-up		
(4) Assembling and trial shot of target product-1 and 2 (Provided mold)																											
a Sample molding																											
b Rust prevention																											
c Mold inspection																											
(5) Assembling and trial shot of target product-3 (Provided mold)																											
a Sample molding																											
b Rust prevention																											
c Mold inspection																											
(6) Assembling and trial shot of target product-4 (Provided mold)																											
a Sample molding																											
b Rust prevention																											
c Mold inspection																											
(7) Assembling and trial shot of target product-5 (Provided mold)																											
(7)-1.Sample molding																											
(7)-2.Rust prevention																											
(7)-3.Mold inspection																											
(8) Mold evaluation																											
(9) Product evaluation																											
a Appearance (visual check)																											
b Dimension measurement of molded product																											

Annex 18 Annual Technical Cooperation Program (ATCP)

lectures | hands-on Training | Dispatch of S/E | C/P Training in Japan

Calendar Year	1999												2000												2001		
Technology Transfer Item / Japanese Fiscal Year	1999												2000														
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			
				Signing of the R/D																							
Term of Technical Cooperation				▼																							
PO 2-2 Implement Technology Transfer to the C/P																											
c Weight measurement of molded product																											
3.4 Assembling and trial shot of target product manufactured under the project																											
(1) Assembling and trial shot of target product-1 (Evaluation of mold and Products)																											
(2) Assembling and trial shot of target product-2 (Evaluation of mold and Products)																											
(3) Assembling and trial shot of target product-3 (Evaluation of mold and Products)																											
(4) Assembling and trial shot of target product-4 (Evaluation of mold and Products)																											
(5) Assembling and trial shot of target product-5 (Evaluation of mold and Products)																											
3.5 Assembling and trial shot of prototyping molds																											
(1) Mold and product evaluation																											
3.6 Regular check and maintenance of machinery																											
(1) Inspection of machinery startup																									Follow-up		
(2) Monthly regular inspections																									Follow-up		
(3) Annual inspections																									Follow-up		
3.7 Solving problems in molding																											
(1) Problems stemming from the mold																											
a nvestigation causes																											
b Countermeasures																											
c Prototype confirmation																											
(2) Problems stemming from molding conditions																											
a Investigation causes																											
b Countermeasures																											
c Prototype confirmation																											
4 Monitoring and necessary feedback (Supplementary Technology Transfer)																											

Annex 19 Plan of Operations (PO)



Note 1 The Japanese fiscal year starts in April and ends in March.
2 This schedule is subject to change in accordance with the Progress of the Project.

Annex 20 Annual Plan of Operations (APO) for the first year of the Project

Output 0 The Project operation unit is enhanced.

Calendar Year	Target	1999						2000										Responsible person in the Project(*)	Input (*)	Remarks
Fiscal Year		TFY 1999				TFY 2000														
		JFY 1999							JFY 2000											
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Term of Technical Cooperation			Signing of the R/D ▼									JCC ▼						JCC ▼			
0 The Project operation unit is enhanced.																				
0-1 Allocate necessary personnel as planned.																				
0-1-1 Make personnel allocation plan.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
0-1-2 Allocate personnel as planned.																		CA, PM	JPC, LE, TPC, TC	
0-1-3 Review personnel allocation, if necessary.																	—	CA, PD	JPC, LE, PM, TPC, TC	
0-2 Formulate plans of activities.																				
0-2-1 Formulate plans of activities for the Project.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
0-2-2 Formulate plans of activities for the first year.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
0-2-3 Review plans of activities, if necessary.																		CA, PD	JPC, LE, PM, TPC, TC	
0-2-4 Formulate plans of activities for the second year.																	—	CA, PD	JPC, LE, PM, TPC, TC	
0-3 Make budget plan and execute properly.																				
0-3-1 Execute budget for TFY 1999 as planned.			—	—	—													PM	TPC, TC	
0-3-2 Make budget plan for TFY 2000.			—	—	—													PM	TPC, TC	
0-3-3 Approve budget for TFY 2000.					—													PD	PM, TPC, TC	
0-3-4 Execute budget for TFY 2000.						—	—	—	—	—	—	—	—	—	—	—	—	CA, PM	JPC, LE, TPC, TC	
0-3-5 Make budget plan for TFY 2001.							—	—	—	—	—	—	—	—	—	—		CA, PM	JPC, LE, TPC, TC	
0-3-6 Approve budget for TFY 2001.																	—	CA, PD	JPC, LE, PM, TPC, TC	
0-4 Establish and operate management system.																				
0-4-1 Review existing management system.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
0-4-2 Make plan of management system.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
0-4-3 Establish management system.							—	—	—	—	—	—						CA, PM	JPC, LE, TPC, TC	
0-4-4 Operate management system.							—	—	—	—	—	—	—	—	—	—	—	CA, PM	JPC, LE, TPC, TC	
0-4-5 Monitor and review management system, if necessary.											—	—					—	CA, PD	JPC, LE, PM, TPC, TC	

(*) <Thai side>

PD : Project Director
DPD : Deputy Project Director
PM : Project Manager
TPC : Thai Project Coordinator
TC : Technical Coordinator
C/P : Thai C/P

<Japanese side>

IS : Implementation Study Team
CA : Chief Advisor
JPC : Project Coordinator
LE : Long-term expert
SE : Short-term expert

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

Calendar Year		1999						2000										Responsible person in the Project(*)	Input (*)	Remarks
Fiscal Year	Target	TFY 1999						TFY 2000												
		JFY 1999									JFY 2000									
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Term of Technical Cooperation			Signing of the R/D ▼									JCC ▼						JCC ▼			
1 The necessary machinery and equipment are provided, installed, operated and maintained properly.																				
1-1 Make facility refurbishment plan and implement as planned.																				
1-1-1 Make facility refurbishment plan.			—				—											(IS), CA, PM	JPC, LE, TPC, TC	
1-1-2 Implement as planned.																		CA, PM	JPC, LE, TPC, TC	
1-2 Provide and install necessary machinery and equipment.																				
1-2-1 Identify specifications of necessary machinery and equipment.			—															(IS), PM	TPC, TC	
1-2-2 Make the plan of dispatch of short-term experts for installation.			—				—											(IS), CA, PM	JPC, LE, TPC, TC	
1-2-3 Implement tenders and select traders.				—														(IS), PM	TPC, TC	
1-2-4 Procure and transport the machinery and equipment to the Project site.					—													CA, PM	JPC, LE, TPC, TC	
1-2-5 Install the machinery and equipment.																		CA, PM	LE, SE, TC, C/P	
1-3 Operate and maintain the machinery and equipment properly.																				
1-3-1 Make maintenance plan of the machinery and equipment.																		LE, TC	LE, SE, TC, C/P	
1-3-2 Prepare or develop operation and maintenance manual.																		LE, TC	LE, SE, TC, C/P	
1-3-3 Operate and maintain the machinery and equipment as planned.																		LE, TC	LE, SE, TC, C/P	
1-3-4 Provide fundamental training on operation and maintenance of machinery and equipment.																		LE, TC	LE, SE, TC, C/P	

(*) <Thai side>

PD : Project Director
DPD : Deputy Project Director
PM : Project Manager
TPC : Thai Project Coordinator
TC : Technical Coordinator
C/P : Thai C/P

<Japanese side>

IS : Implementation Study Team
CA : Chief Advisor
JPC : Project Coordinator
LE : Long-term expert
SE : Short-term expert

Output 2 Technical capability of the counterpart personnel (hereinafter referred to as "C/P") are upgraded.

Calendar Year	Target	1999						2000										Responsible person in the Project(*)	Input (*)	Remarks
Fiscal Year		TFY 1999						TFY 2000												
		JFY 1999									JFY 2000									
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10		
Term of Technical Cooperation			Signing of the R/D ▼									JCC ▼						JCC ▼		
2 Technical capability of the counterpart personnel (hereinafter referred to as "the C/P") are upgraded.																				
2-1 Make Technical Cooperation Program.																				
2-1-1 Evaluate technical capability of the C/P through interviews, test, factory visit and so on.			—															(IS), CA, PM	JPC, LE, TPC, TC	
2-1-2 Make Technical Cooperation Program (TCP).			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
2-1-3 Make Annual Technical Cooperation Program (ATCP) for the first year of the Project.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
2-1-4 Review TCP & ATCP.											—	—						CA, PD	JPC, LE, PM, TPC, TC	
2-1-5 Make ATCP for the second year of the Project.																	—	CA, PD	JPC, LE, PM, TPC, TC	
2-1-6 Review TCP, if necessary.																	—	CA, PD	JPC, LE, PM, TPC, TC	
2-2 Implement technology transfer to the C/P.																				
2-2-1 Prepare teaching material.							—	—	—	—	—	—	—	—	—	—	—	LE, TC	LE, SE, TC, C/P	
2-2-2 Implement technology transfer as planned.							—	—	—	—	—	—	—	—	—	—	—	LE, TC	LE, SE, TC, C/P	
2-2-3 Compile textbooks and necessary documents							—	—	—	—	—	—	—	—	—	—	—	LE, TC	LE, SE, TC, C/P	
2-3 Monitor and evaluate the result of technology transfer to the C/P.																				
2-3-1 Make monitoring and evaluation plan.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	Refer to 0-4-2.
2-3-2 Establish monitoring and evaluate plan.							—	—	—	—	—							CA, PM	JPC, LE, TPC, TC	Refer to 0-4-3.
2-3-3 Monitor the result of technology transfer to the C/P.							—	—	—	—	—	—	—	—	—	—	—	CA, PM	JPC, LE, SE, TPC, TC, C/P	
2-3-4 Evaluate the result of technology transfer to the C/P.											—	—					—	CA, PD	JPC, LE, PM, TPC, TC, C/P	

(*) <Thai side>

PD : Project Director
DPD : Deputy Project Director
PM : Project Manager
TPC : Thai Project Coordinator
TC : Technical Coordinator
C/P : Thai C/P

<Japanese side>

IS : Implementation Study Team
CA : Chief Advisor
JPC : Project Coordinator
LE : Long-term expert
SE : Short-term expert

Output 3 Technical training and seminars are implemented systematically.

Calendar Year	Target	1999						2000										Responsible person in the Project(*)	Input (*)	Remarks
Fiscal Year		TFY 1999						TFY 2000												
		JFY 1999									JFY 2000									
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Term of Technical Cooperation			Signing of the R/D ▼									JCC ▼						JCC ▼			
3 Technical training and seminars are implemented systematically.																				
3-1 Make plan of technical training and seminars.																				
3-1-1 Grasp the needs for technical training and seminars.																				
3-1-1-1 Make plan of factory visit.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
3-1-1-2 Implement factory visit.			—				—											CA, PM	JPC, LE, SE, TPC, TC	
3-1-1-3 Implement the regular meetings with industrial associations concerned.			—				—											CA, PM	JPC, LE, TPC, TC	
3-1-2 Analyze the results of the said needs survey.													—					CA, PM	JPC, LE, TPC, TC	
3-1-3 Make plan of technical training and seminars.													—					CA, PM	JPC, LE, TPC, TC	
3-1-4 Develop curricula for technical training.													—					LE, TC	LE, TC, C/P	
3-1-5 Decide theme and schedule for the opening seminar.																—		CA, PM	JPC, LE, TPC, TC	
3-2 Implement technical training and seminars.																				
3-2-1 Prepare teaching material and textbooks for technical training.																		LE, TC	LE, SE, TC, C/P	
3-2-1 Implement opening seminar.																	—	CA, PD	JPC, LE, SE, PM, TPC, TC	
3-3 Monitor and evaluate technical training and seminars.																				
3-3-1 Make monitoring and evaluation plan.			—				—										—	(IS), CA, PD	JPC, LE, PM, TPC, TC	Refer to 0-4-2.
3-3-2 Establish monitoring and evaluation plan.			—				—										—	CA, PM	JPC, LE, TPC, TC	Refer to 0-4-3.
3-3-3 Evaluate the result of the opening seminar.																	—	CA, PM	JPC, LE, SE, TPC, TC, C/P	

(*) <Thai side>

PD : Project Director
DPD : Deputy Project Director
PM : Project Manager
TPC : Thai Project Coordinator
TC : Technical Coordinator
C/P : Thai C/P

<Japanese side>

IS : Implementation Study Team
CA : Chief Advisor
JPC : Project Coordinator
LE : Long-term expert
SE : Short-term expert

Output 4 Technical information and advisory services as a trial are implemented systematically.

Calendar Year	Target	1999						2000										Responsible person in the Project(*)	Input (*)	Remarks
Fiscal Year		TFY 1999						TFY 2000												
		JFY 1999									JFY 2000									
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10		
Term of Technical Cooperation			Signing of the R/D ▼									JCC ▼						JCC ▼		
4 Technical information and advisory services as a trial are implemented systematically.																				
4-1 Make plan of trial technical information and advisory services.																				
4-1-1 Identify necessary technical information and advisory service.																				
4-1-1-1 Make plan of factory visit.			—				—											(IS), CA, PD	JPC, LE, PM, TPC, TC	
4-1-1-2 Implement factory visit.			—				—											CA, PM	JPC, LE, SE, TPC, TC	
4-1-1-3 Implement the regular meetings with industrial associations concerned.			—				—											CA, PM	JPC, LE, TPC, TC	
4-1-2 Analyze the result of the said needs survey.							—						—					CA, PM	JPC, LE, TPC, TC	
4-1-3 Make plan of trial technical information and advisory services.							—						—					CA, PM	JPC, LE, TPC, TC	
4-2 Collect and compile technical information and material.																				
4-2-1 Collect and compile technical information and material.							—						—					LE, TC	LE, SE, TC, C/P	
4-3 Implement trial technical information and advisory services.																				
4-3-1 Implement trial technical information and advisory services as planned.																	—	LE, TC	LE, SE, TC, C/P	
4-4 Monitor and evaluate trial technical information and advisory services.																				
4-3-1 Make monitoring and evaluation plan.			—				—										—	(IS), CA, PD	JPC, LE, PM, TPC, TC	Refer to 0-4-2.
4-3-2 Establish monitoring and evaluation plan.			—				—										—	CA, PM	JPC, LE, TPC, TC	Refer to 0-4-3.
4-3-3 Monitor the trial technical information and advisory services.																	—	CA, PM	JPC, LE, SE, TPC, TC, C/P	

(*) <Thai side>

PD : Project Director
DPD : Deputy Project Director
PM : Project Manager
TPC : Thai Project Coordinator
TC : Technical Coordinator
C/P : Thai C/P

<Japanese side>

IS : Implementation Study Team
CA : Chief Advisor
JPC : Project Coordinator
LE : Long-term expert
SE : Short-term expert

Output 5 Trial prototyping service is implemented systematically.

Calendar Year	Target	1999						2000										Responsible person in the Project(*)	Input (*)	Remarks
Fiscal Year		TFY 1999						TFY 2000												
		JFY 1999									JFY 2000									
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Term of Technical Cooperation			Signing of the R/D ▼									JCC ▼						JCC ▼			
5 Trial prototyping service is implemented systematically.																				
5-1 Make plan of trial prototyping service.																				
5-1-1 Grasp the needs for prototyping service.																				
5-1-1-1 Make plan of factory visit.			—				—												(IS), CA, PD	JPC, LE, PM, TPC, TC	
3-1-1-2 Implement factory visit.			—				—												CA, PM	JPC, LE, SE, TPC, TC	
5-1-1-3 Implement the regular meetings with industrial associations concerned.			—				—												CA, PM	JPC, LE, TPC, TC	
5-1-2 Make plan of trial prototyping service.							—								—				CA, PM	JPC, LE, TPC, TC	
5-2 Implement trial prototyping service.																				
5-2-1 Implement trial prototyping service as planned.																			LE, TC	LE, SE, TC, C/P	
5-3 Monitor and evaluate trial prototyping service.																				
5-3-1 Make monitoring and evaluation plan.			—				—											—	(IS), CA, PD	JPC, LE, PM, TPC, TC	Refer to 0-4-2.
5-3-2 Establish monitoring and evaluation plan.			—				—											—	CA, PM	JPC, LE, TPC, TC	Refer to 0-4-3.
5-3-3 Monitor the trial prototyping service.																		—	CA, PM	JPC, LE, SE, TPC, TC, C/P	

(*) <Thai side>

PD : Project Director
DPD : Deputy Project Director
PM : Project Manager
TPC : Thai Project Coordinator
TC : Technical Coordinator
C/P : Thai C/P

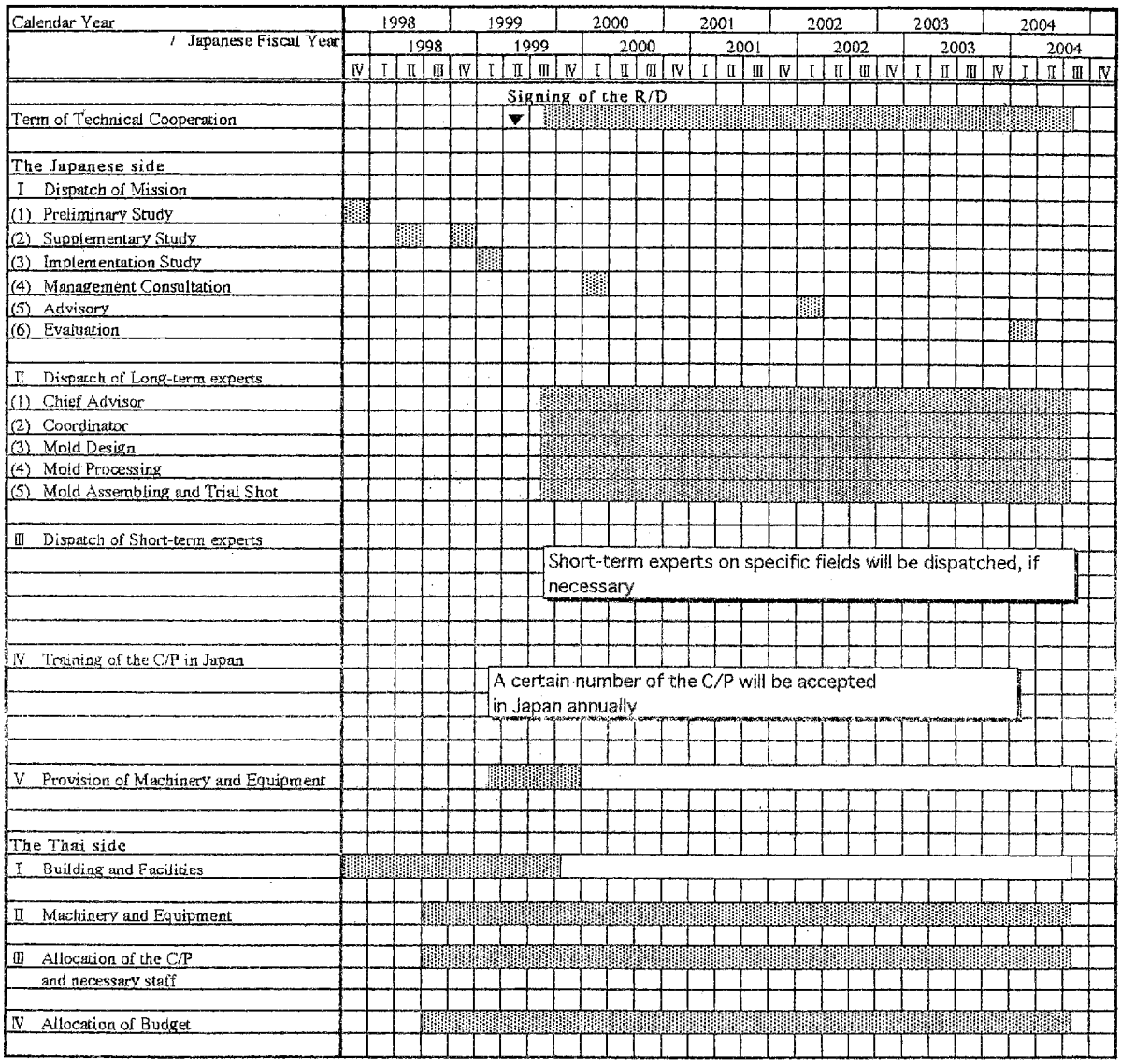
<Japanese side>

IS : Implementation Study Team
CA : Chief Advisor
JPC : Project Coordinator
LE : Long-term expert
SE : Short-term expert

Annex 21 Annual Tentative Schedule of Implementation (ATSI)

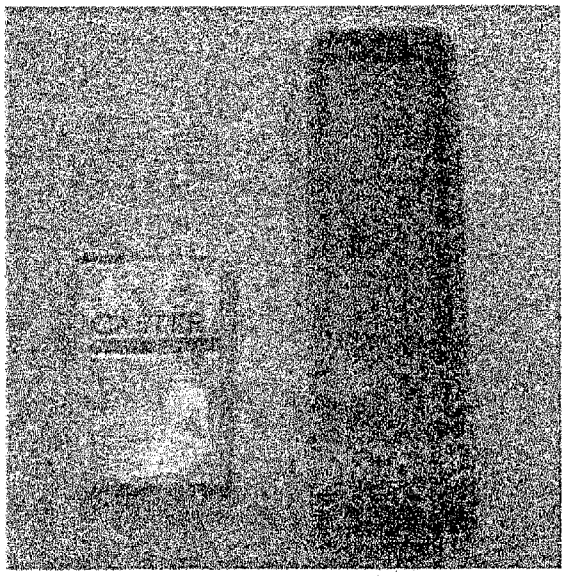
Calendar Year	1999												2000												2001		
/ Japanese Fiscal Year	1999												2000														
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			
				Signing of the R/D																							
Term of Technical Cooperation				▼																							
The Japanese side																											
I Dispatch of Mission																											
(1) Implementation Study																											
(2) Management Consultation																											
II Dispatch of Long-term experts																											
(1) Chief Advisor																											
(2) Coordinator																											
(3) Mold Design																											
(4) Mold Processing																											
(5) Mold Assembling and Trial Shot																											
III Dispatch of Short-term experts																											
(1) CAD/CAM/DNC																											
(2) Installation and Operation (CAD/CAM/DNC)																											
(3) EDM/W-EDM																											
(4) Lapping																											
(5) Production Control																											
(6) Heat Treatment																											
(7) Surface Treatment																											
(8) Seminar																											
(9) Others (If necessary)																											
IV Training of the C/P in Japan																											
				A certain number of the C/P will be accepted in Japan annually																							
V Provision of Machinery and Equipment																											
The Thai side																											
I Building and Facilities																											
II Machinery and Equipment																											
III Allocation of the C/P and necessary staff																											
IV Allocation of Budget																											

Annex 22 Tentative Schedule of Implementation (TSI)



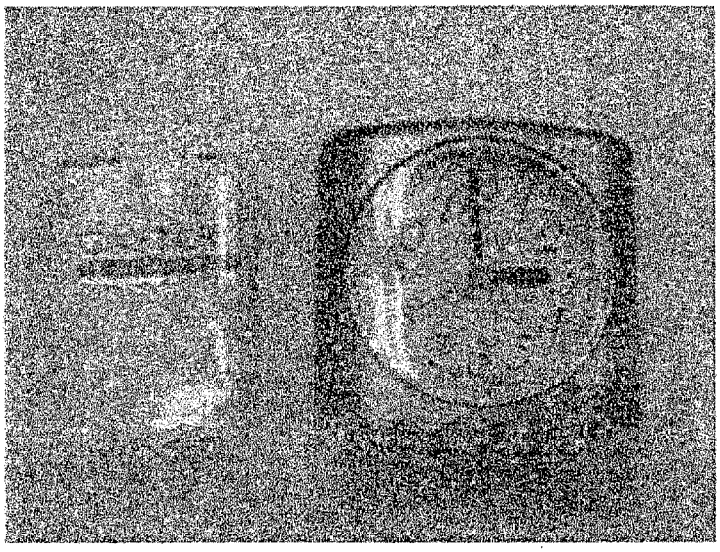
Annex 23 Specifications of the Target Product

Target Product

Phase	Die and Mold Course I
Product Name	Pen Tray
Mold Type	Side Gate
Mold Size, Weight	280 x 350 x 255mm 、 160kg
	
Purpose	To master the basic structure of a two-plate vertical split mold To learn about thickness and the basic shapes of rib and boss To understand the importance of polishing the mold surface
Remarks	

Target Product

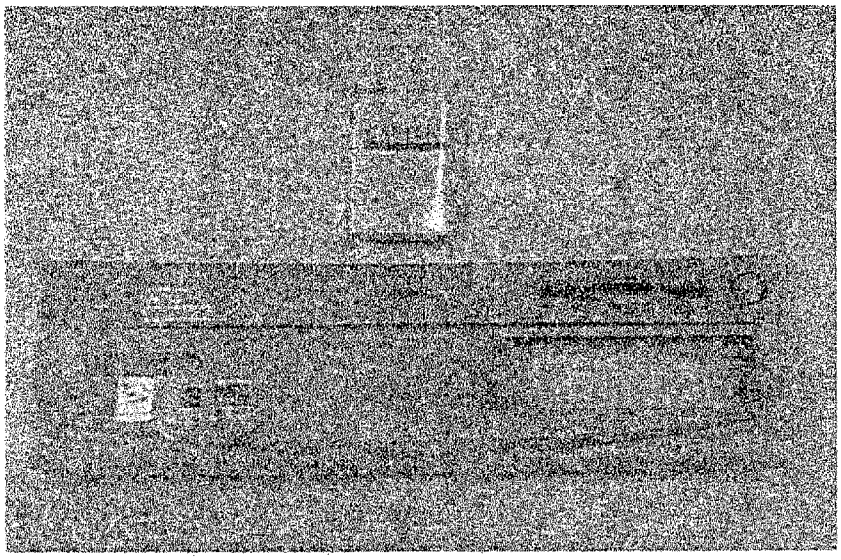
Phase	Die and Mold Course Ⅱ
Product Name	Front Case for Alarm Clock
Mold Type	Side Gate
Mold Size, Weight	250 x 250 x 300mm 、120kg



Purpose	To master the applicable structure of a two-plate vertical split mold and partial undercutting To learn fabrication of simple curve shapes and undercutting
Remarks	

Target Product

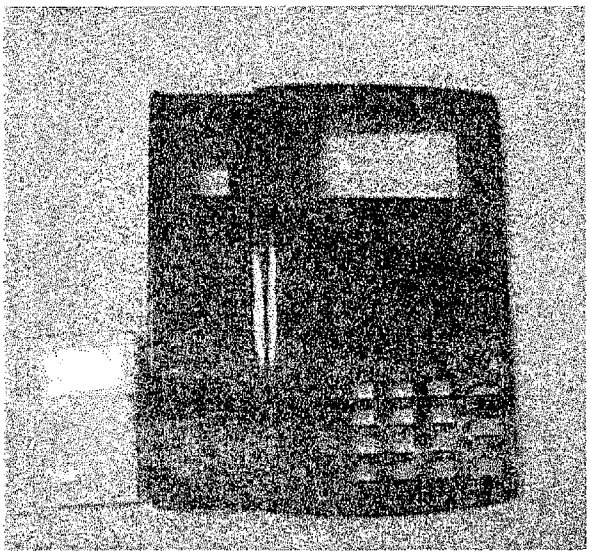
Phase	Die and Mold Course Ⅲ
Product Name	Front Panel for Personal Computer
Mold Type	Pin Gate
Mold Size, Weight	450 x 700 x 480mm 、980kg



Purpose	To master the basic structure of a three-plate vertical split mold To master insert thinking To learn the thinking behind medium-sized mold strength and insert division
Remarks	

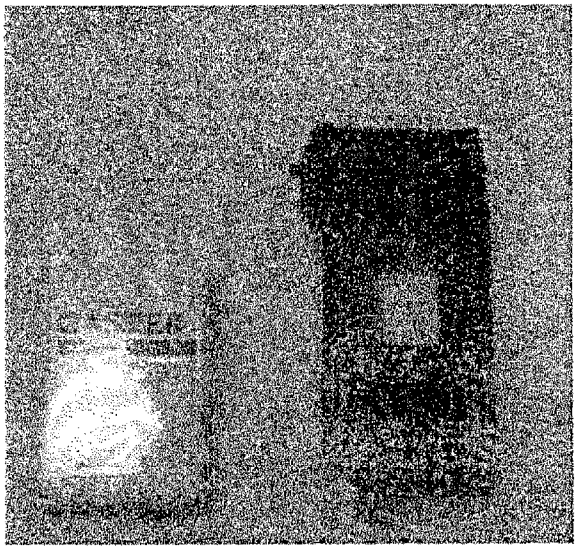
Target Product

Phase	Die and Mold Course Ⅳ
Product Name	Upper Case for Telephone
Mold Type	Pin Gate
Mold Size, Weight	550 x 450 x 440 mm、600kg



Purpose	To master the fabrication process of an exterior appearance-oriented mold To learn about improving core shape (which strongly affects appearance),cavity insertion,polishing of glossy surfaces, and undercutting of core
Remarks	

Target Product

Phase	Die and Mold Course V
Product Name	Camera Body
Mold Type	Side Gate
Mold Size, Weight	450 x 400 x 360mm 、 360kg
	
Purpose	To master the basic structure of a two-plate undercutting mold To learn about split mold and general directional undercutting To learn about mold fabrication elementary technology
Remarks	

Annex 24 The Budget to be allocated for the Project

(Unit Baht)

Items \ TFY	2000	2001	2002	2003	2004	2005	Total
1 Supplies	200,000	250,000	250,000	250,000	250,000	20,100	1,220,100
2 Maintenance	0	3,300,000	3,300,000	3,300,000	3,300,000	275,000	13,475,000
(1) Computers		1,300,000	1,300,000	1,300,000	1,300,000	108,000	5,308,000
(2) Other machine		2,000,000	2,000,000	2,000,000	2,000,000	168,000	8,168,000
3 Transportation and Tax for the Machinery	1,000,000						1,000,000
4 Renovation of Workshop A	5,074,000						5,074,000
5 Additional Equipment	726,000	1,074,000					1,800,000
Total	7,000,000	4,624,000	3,550,000	3,550,000	3,550,000	295,100	22,569,100

Annex 25 The estimate of necessary consumable

Description	Amount					
Target Product	Pen Tray	Front Case for Alarm Clock	Front Panel for Personal Computer	Upper Case for Telephone	Camera Body	Total
Tools(Collets, Tool holders, etc.)	50,000	50,000	50,000	50,000	50,000	250,000
Mold base(Including guide pins, return pins, etc.)	32,000	25,000	175,000	150,000	75,000	457,000
Standard parts(locate ring, sprue bush, etc.)	25,000	25,000	38,000	38,000	38,000	164,000
Steels	4,000	4,000	8,000	8,000	8,000	32,000
Other consumable(Oil, Clean Water, etc.)	50,000	50,000	50,000	50,000	50,000	250,000
Total	161,000	154,000	321,000	296,000	221,000	1,153,000

Note : The cost for Tools and Other consumable costs respective Target Products are rough estimates, because the said costs are calculated by just dividing the total costs into 5(five) .