



PROJECT MANUAL

ILO . UNDP . ISD

Project Manual for The Pre-Employment Curriculum Development Project.

Project No. THA/72/026/0/01/11

1981-1982

Institute for Skill Development
Department of Labour
Ministry of Interior

The Original Manual was Written in Thai and this Version is a
Translation of the Thai Manual.

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BRIEF PROJECT DESCRIPTION

The project involves the development of a series of training manuals for the twenty one (21) basic pre-employment or job entry skill training courses offered at the Institute for Skill Development and the five Regional Institutes in Thailand. The Institutes are listed below and a list of the courses offered at each institute, and the length of each course follows on the next page.

The training manuals will consist of sets of instruction sheets including lesson plans, information sheets, operation sheets, job sheets, and test sheets. The training manuals are being prepared, in Thai, by Thai specialists who are working in the vocational training/education field. These specialists are called Writers. Each training manual is being prepared in line with the standard curricula model and using the format outlined for the projects in the subsequent sections of this manual. To ensure that the training manuals are of suitable quality each manual is being examined by a 2 member Scrutinizing Committee, one member of whom is responsible for technical content while the other will be responsible for ensuring that the content is at a level appropriate for a basic pre-employment course.

Institutes for Skill Development in Thailand

- | | |
|---|--------|
| 1. Institute for Skill Development - Bangkok | - ISD |
| 2. Khon Kaen Institute for Skill Development | - KISD |
| 3. Lampang Institute for Skill Development | - LISD |
| 4. Choburi Institute for Skill Development | - CISD |
| 5. Ratchaburi Institute for Skill Development | - RISD |
| 6. Songkla Institute for Skill Development | - SISD |

/Name...

Name of pre-employment courses, institutes offering courses,
and length of courses in months

NAME OF COURSE	INSTITUTE OFFERING COURSE AND LENGTH OF COURSE IN MONTHS					
	ISD	KISD	LISD	CISD	BISD	SISD
1. Building Painting	3					
2. Furniture Painting	3		3			
3. Masonry	6	6	6			6
4. Plumbing	6			6	6	6
5. Auto Mechanic (diesel)	6	6	6	6	6	10
6. Auto Mechanic (petrol)	6	6	6	6	6	10
7. Welding/Sheet Metal	6	6	6	6	6	6
8. Carpentry	6	6				6
9. Furniture Manufacture	6	6	6	6		6
10. Electrical	6	6	6	6	6	6
11. Air-Conditioning & Refrigeration	6	6	6	6	6	6
12. Electronics	10		10	6	6	
13. Fitter Machinist	10	6	10	10	6	10
14. General Fitting	10	6	10		6	
15. Lathe Operator	10	6	10	10	6	10
16. Auto Body Repair	10				10	
17. Architectural Drawing	11			10		
18. Mechanical Drawing	11				6	11
19. Survey	11					
20. Advertising Drawing	11					
21. Building Construction	11				6	

FOREWORD

Curriculum which is systematically developed, up-to-date, and responsive to the demands of the labour market performs a significant role in vocational training programs. The Institute for Skill Development (ISD) has continually reviewed and revised the curriculum for its training courses to ensure that the courses conducted at ISD are efficient and provide training which is beneficial to the trainee and for industry.

As the Regional Institutes for Skill Development (RISD) were established to develop skilled labour on a local basis, it has become necessary to have similar training curriculum, and training materials and aids in order to standardize the training at ISD and the RISD's.

Because the instructional staff at ISD have heavy day-to-day instructional responsibilities they are unable to produce the needed standardised curriculum material. Local Thai experts in the various trade areas are therefore needed to develop the standardized curriculum materials.

DEFINITIONS

Course Outline:

An organized guide for the instructor in developing the necessary training activities for the trainees. Course outlines for all courses at ISD have been developed by the Chief of Workshop, respective Chief of Unit, ILO Experts, and KMIT staff.

National Trade Standard:

The NTS's have been developed through the National Council for Skill Development and are designed to provide national standards and grading of skills for tradesman.

Job Description:

A general statement about what a trainee should be able to do on the job after completion of a training course at ISD or a RISD.

Modular Unit:

An MU is a convenient device based on locally accepted divisions of work used for organizing trainees learning activities. Modular units are made up of a number of learning tasks - the number of learning tasks will vary depending on the desired trainee outcome which is based on the level of work to be performed.

Learning Task:

A complete element of learning, is usually a combination of doing and knowing. Performance of a learning task usually results in a product or some observable change in the trainee. A learning task should be readily observable or measurable.

/In....

Instruction Sheets:

Instruction sheets consist of five different types of sheets; lesson plans, information, operation, job and test sheets. Lesson plans state what the trainees will learn, information on how the trainees will learn and the aids and resources the instructor will use. Lesson plans make reference to the accompanying information, operation, job, and test sheets. It is expected that individual instructors will expand upon the "how the trainees will learn" sections to suit their individual trainees.

THE UNDP NEW DIMENSION APPROACH TO THE CURRICULUM DEVELOPMENT PROJECT.

The Objective of The Project Manual is to introduce the writer and the scrutinizer to:

1. the model for curriculum and material development,
2. the criterias for the submission and acceptance of material,
- and 3. payment procedures.

Assignment

The writer must develop the training manuals for one of the 21 pre-employment basic trade skills training courses offered at ISD and must submit the complete training materials (instruction sheets) in accordance with the set schedule.

Honoraria payment

Both writers and scrutinizers will receive honoraria payment from UNDP/ILO based on the length of training materials. Their names and contribution will be recognized in the final publication.

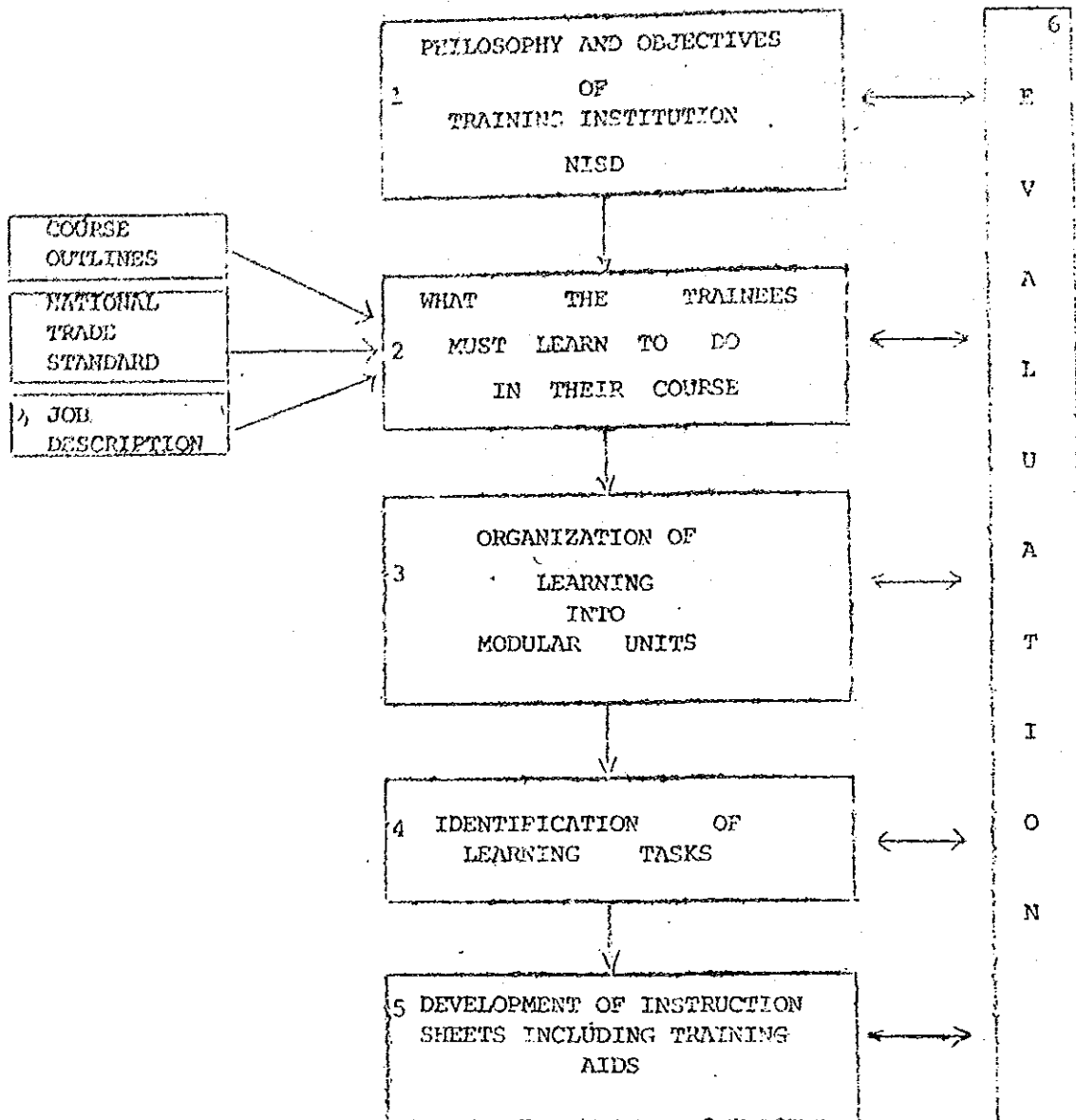
/The...

The material package prepared by ISD to guide the writer and scrutinizing committee members.

1. This project manual
2. Pre-employment course outlines
3. National Trade Standards
4. Job descriptions
5. A sample copy of developed training material for the Lathe Operator trade
6. Other useful materials

MODEL FOR CURRICULUM DEVELOPMENT

The ISD curriculum development model used for the project is based on the assumption that in an operating institution the process of curriculum development is continual and dynamic. It therefore must take into account the instructional system presently used in the institution as well as the curriculum materials presently in use by the instructors. This leads to a six step model: see following page



After each of the 3,4,5th steps, the material has to be approved by the Scrutinizing Committee Members before proceeding to the next step. Full details follow.

POLICIES AND OBJECTIVES OF DEPARTMENT OF LABOUR AND
OF TRADES TRAINING AT ISD AND RISD'S

Since the policies and objectives of trades training at the Department of Labour ISD's may differ from those of other vocational training institutions both the writers and scrutinizers should become familiar with the policies and objectives of the Department of Labour and of the ISD's. These policies and objectives were detailed in the Fourth Economic and Social National Development Plan (1977-1981).

Policies and Objectives of the Department of Labour

(a) to promote and develop maximum employment programmes for the agricultural and non-agricultural sectors in order to minimise unemployment and under-employment and

(b) to promote and support Industrial Development which is labour intensive, with the intention of increasing the work force.

(c) to promote the expansion of industries in the rural sectors so that the labour force can be utilized more effectively, and to reduce the migration of rural labour to the urban areas which causes social and economic problems.

(d) to promote and improve the efficiency of workers' production performance.

Objectives of the trades training at ISD and RISD's

The following objectives were developed for the ISD's to enable the Department of Labour to partially achieve its overall objectives.

(a) to develop efficient labour forces participants before they enter the labour market.

(b) to up-grade employed-labour forces in order to gain more efficiency.

/(c)...

- (c) to promote business and industrial sectors and to co-operate in skilled labour development activities.
- (d) to develop a skilled labour force to meet demands of labour markets and localities.

From the policies and objectives it should be noted that the training courses offered at the institutes are designed to provide employment and to up-grade skills among employed labour forces and that the courses emphasize trade and general industrial skills rather than cottage or home industrial skills. ISD has continuously received assistance in the form of grants and loans from international organizations and has allocated Thai government budget to support such training. At the same time trade training has expanded to 6 regional institutes. Currently, there are .8 institutes as follows:-

1. Institute for Skill Development, Din Daeng, Bangkok
2. Institute for Skill Development, Wat Tatong, Bangkok
3. Ratchaburi Institute for Skill Development
4. Cholburi Institute for Skill Development
5. Lampang Institute for Skill Development
6. Khon Khaen Institute for Skill Development (Thai-Japanese
Co-operation)
7. Songkla Institute for Skill Development (Thai-German
Co-operation - under construction)
8. Nakorn Sawan Institute for Skill Development (Thai-UNDP/ILO
Co-operation in planning stage)

The Main Activities at ISD's are as follows.

1. Pre-Employment Training (day courses for adolescents)
2. Skill Up-grade Training (evening courses for employed persons)
3. In-plant Training (industries training)
4. Non-technical Training (for example, secretarial training)
5. Trade Standard setting and testing
6. Curriculum and training aids development

/The....

The pre-employment training program

Since the curriculum development project is concerned at this time only with the twenty-one pre-employment basic trade skills training courses, both the writer and the scrutinizers have to familiarize themselves with the scope of pre-employment training:-

1. Pre-employment training is the basic skill training offered in order to produce semi-skilled labour, forces for trade and industry. Upon completion of their course, the trainees will be employed as semi-skilled workers in trade or industry or else. They run their own small business, this is usually more suitable for the regional institute trainees.

2. Pre-employment training is short-term, ranging from 3-11 months in length. It is offered to drop-out youths who have discontinued their studies usually because of poverty. However they are interested in becoming employed so they can earn a wage for themselves and their family. The applicants are 16-25 years old, their academic background requirements differ from Patom 6 to MS.3. depending on the course they apply for. Training is offered free of charge.

3. Training is conducted from 08.30 to 16.30 hours and 80% of the total training time is spent on practical activities in the workshop. Training is conducted with tools, materials, training aids and by experienced instructors.

4. Upon completion of the required courses at the institute, the trainees are sent to selected industries for in-plant training which lasts for 2-4 months. During this time they return to the institute one day per week in order to discuss problems encountered under actual working conditions. The in-plant training program provides the trainees with relevant working experience and, they also have an opportunity to be employed by the host employers.

5. Upon completion of the Inplant part of the training course ISD presents each trainee with a certificate from the Department of Labours. At the same time, ISD tries to find suitable employment for trainees. Once they are employed, they can return and take evening courses to up-grade the skills and knowledge of their trades.

/The....

THE WRITER'S ROLE IN CURRICULUM DEVELOPMENT

Once the writer has studied the policies, objectives and training systems of the institute he should start considering what the curriculum at the institute should be in order that the trainees will gain adequate job entry level skills and technical knowledge. The writer should make use of the material package prepared by ISD, his own judgement and related self-experiences to develop the training materials in such a way that they are suited to the requirements of the training conducted at NISD.

Pre-Employment Course Outlines and Course Organization

The ISD's provide all instructors with course outlines for the pre-employment courses. Instructors are expected to expand the details on their own. The course outlines provide the writers with information on the content of pre-employment courses at the present time. The training given trainees is somewhat limited in scope as the pre-employment courses are short-term and are based on the demands of the local labour market for beginning trade workers.

Courses at the ISD's are organized in different ways. For example in the auto-mechanical area separate courses are provided for automotive-petrol and automotive diesel while in the machine shop area there are three separate courses-general fitting, lathe operator, and fitter machinist.

The instructional method for all courses is the group method as the trainees generally have no previous experience with the course content and also there are many trainees in each course. A so-called "module" approach is used for some courses. Course content is broken down into self contained divisions or modules/groups of about 20 trainees rotate among the modules.

/Example....

Example of the module training courses

Auto-machanic (petrol) 6 months	Welding/Sheet Metal 6 months	Electrical 6 months
1. engine unit	1. gas welding	1. wiring
2. auto-electricity unit	2. electrical welding	2. generator repair
3. auto-transmission unit	3. metal/sheet welding	3. electrical supplies repairing
4. mantainance services unit		
Each module lasts 1 1/2 months	Each module last 2 months	Each module lasts 2 months

Many courses require trainees to undertake common subjects before proceeding to specific trade training. For example, there are 5 trades in the drawing area, however all trainees study common subjects (basis drawing) for 3 months in order to gain fundamental knowledge and skills in drawing and mathematics. After this requirement they are trained for a further 8 months in their specialization according to their choice of specialization. The total course duration lasts 11 months.

Drawing Course

Common Subject - 3 months	Major Specializations - 8 months
Basic Drawing Mathematics	Architectural Drawing Trade Machanical Drawing Trade Advertising Drawing Trade Survey Building Const mction Trade

/Period...

Period here means the training duration. Each period lasts 50 minutes;
8 periods per day or 40 periods per week or 160 periods per month.

3 month course	-	480	periods
6 month course	-	960	periods
10 month course	-	1,600	periods
11 month course	-	1,760	periods

	Training Period (month)		Minimum Education Level	Number of Courses per Year	Modular Units Taken
	at the ISD	In-plant			
<u>Building Construction</u>					
<u>Work shop</u>					
1. Building Painting	3	2	Patom 4	3	-
2. Furniture Painting	3	2	Patom 4	3	-
3. Masonry	6	3	" 4	2	-
4. Plumbing	6	3	" 4	2	-
5. Furniture making	6	3	" 6	2	-
6. Carpentry	6	3	" 6	2	-
7. Construction	11	4	Matayom 3	1	-
8. Mechanical Drawing	11	4	" 3	1	-
9. Advertising Drawing	11	4	" 3	1	-
10. Survey	11	4	" 3	1	-
11. Bldg. Construction	11	4	" 3	1	-
<u>Machine Shop work shop</u>					
12. Fitter machinist	10	2	Matayom 3	1	-
13. General Fitting	10	2	" 3	1	-
14. Lathe Operator	10	2	" 3	1	-
15. Welding/Sheet Metal	6	3	Patom 6	2	3
<u>Auto-Machanical Work shop</u>					
16. Auto-machanic (diesel)	6	3	Patom 6	2	2
17. Auto-machanic (petrol)	6	3	" 6	2	4
18. Auto-body repair	10	2	" 6	1	-
<u>Electrical and Electronic</u>					
19. Electrical	6	3	Matayom 3	2	3
20. Electronics	10	2	" 3	1	-
21. Refrigeration	6	3	" 3	2	-

Trade Standards

The concept of trade standards was introduced into Thailand by the International Labour Organization (ILO). The principle underlying trade standards is that the government is responsible for the setting and the testing of trade standards.

In 1968, The Cabinet set up The National Council for Skill Development which was charged with the responsibilities of (i) the formulation of policies and plans for training and skill development, (ii) setting up national standards and the grading of skills, and (iii) the implementation of such policies, plans and standards. In order to give detailed consideration to the subject of national standards and grading of skills The National Council appointed a National Committee for Trade Standards composed of representatives from the Industrial and Government sectors. Sub-committees (known as Trade Committees) of the National Committee have been established to prepare standards for individual trades. Three levels of skill development have been developed:

- The 3rd standard class or the lowest level
- The 2nd standard class or the intermediate level
- The 1st standard class or the highest level

ISD co-ordinates and implements the activities with the sub-committee of each trade.

The benefits of the trade standard classifications are that workers can up-grade themselves by taking trade standard tests, when they have passed all requirements they are presented a certificate according to their classified level. They thus have more opportunity to find jobs, employers can select qualified workers and set and adjust payments suitably. In the long run, productivity will increase.

Currently there are trade standards approved for 10 trades. They are:-

/1...

1. Electrical welding
2. Machinist (lathe operator)
3. Electrician (building)
4. Gas welding
5. Automobile mechanic
6. Mechanical fitter
7. Refrigeration and Air conditioning mechanic
8. Radio-Television mechanic
9. Carpentry (Construction)
10. Plumber

Both the writers and scrutinizers should pay particular attention to the requirements for the 3rd trade standard level. Generally, at the conclusion of their pre-employment course trainees should be able to pass the test for the 3rd trade standard level.

Trainees generally will only be introduced to this content from the 1st and 2nd level and will only be able to pass the 1st and 2nd level trade standard tests after they have gained considerable work experience.

Job Descriptions

The job descriptions are one of the supplementaries to the curriculum development, namely, they give ideas of the training extent, knowledge and skill acquired upon completion. Moreover, the descriptions contribute to the setting of suitable training levels in line with the courses-outline and the trade standards.

INSTRUCTION TO THE WRITER

1. Developing Modular Units

As described in the definition of a modular unit (MU) it is a convenient device used for organizing trainees learning activities and should be self contained. What constitutes a MU is to a large extent determined by how a particular institute organizes its courses and its instructional system.

Many of the courses at ISD have been organized into MU's which suit the present needs of the institute. Writers should ensure that the MU's they develop will fit into the present pattern of MU's used at the institute. However, writers should feel free to suggest a sub-division of the present MU's if such could lead to greater flexibility in the delivery of courses in the future. Writers should use the materials provided by the ISD to assist them in the identification of MU's.

2. Learning Tasks

The definition of a learning task includes the sentence, "A complete element of learning". The learning tasks identified should state tasks which a trainee will be able to do. They may be primarily tasks which involved practical skills or ones which involve primarily cognitive skills or a combination of the two. Learning tasks should describe what the trainee will be able to do upon completion of instruction and start with an action verb.

Examples of correctly stated learning tasks and the type of skill developed are

- | | |
|---|-------------|
| 1. Mix mortars by hand | - practical |
| 2. Surfacing concrete | - practical |
| 3. Calculate volumes in mixing concrete | - cognitive |
| 4. Weld fillet welds | - practical |
| 5. Weld upwards, straight heads | - practical |

/6....

- | | |
|---|-------------|
| 6. Identify welding symbols | - cognitive |
| 7. Service car oil filter | - practical |
| 8. Clean and gapping spark plugs | - practical |
| 9. Describe the operation of a 4-stroke petrol engine | - cognitive |
| 10. Sharpen lathe cutter | - practical |
| 11. Bend rigid PVC conduit | - practical |
| 12. Explain a simple electrical circuit | - cognitive |

Further information on the way to select and describe learning tasks can be obtained from the ISD Curriculum Development Unit.

3. Instruction sheets

The format for instruction sheets has been standardised to enable them to be used by the greatest variety of instructors and trainees. They should be an organized plan for an instructor which will provide him with a detailed outline of what the trainees must learn, some basic ideas on how the trainees will learn, the aids, resources to be used, and how the instructor will determine how well the trainees have learned. It is expected that individual instructors will expand upon the material contained in the instruction sheets to suit their specific learning situation.

There will be five types of instruction sheets. Copies are in the Appendix.

- | | |
|-----------------------|---------------------------|
| A. Lesson plans | - for all learning tasks |
| B. Job sheets | - for practical lesson |
| C. Operation sheets | - for practical lessons |
| D. Information sheets | - for information lessons |
| E. Test sheets | - for learning tasks |

Lesson plans will be used only by the instructors. Job, operation, information and test sheets may be given to the trainees by individual instructors.

/s....

4. Lesson plans

For each learning task at least one lesson plan should be prepared. A lesson should not be considered to be a specific period of time (50 minutes) but rather it can last anywhere from 50 minutes to as long a week. As a guide writers will generally find that during the early stages of a course lesson plans will be for shorter periods of time while during the later stages of a course they will be for longer periods of time as trainees work on more advanced projects or jobs. If a writer feels that it is appropriate to break down a learning task into more than one lesson plan he should feel free to do so.

There will be three main types of lessons taught and lesson plans should reflect this variety. The three types of lesson are:

- (i) an entirely practical lesson
- (ii) an information or theory lesson
- and (iii) a combination of a practical and information lesson where the information taught will be in the form of a shop talk in the shop rather than a theory lesson in a classroom.

Lesson Plans will contain the following sections.

- (a) Various small sections at the top of the lesson plan to be used for identification purposes.
- (b) Objectives The objectives should describe the expected outcomes of the lesson in terms of what the trainees will be able to do upon completion of lessons. The objectives should be an expansion of the learning task.
- (c) Method of teaching This section should indicate the overall method which should be used. The main methods which will be used for information or theory lessons include:

/Lecture....

Lecture
Discussion
Problem solving
and Field Trip

For a practical lesson the major method used will be demonstration.

- (d) Lesson points The major topics which will be taught should be identified here. If the lesson is a practical one then the major steps involved in the demonstration should be identified and correctly sequenced.

If the lesson is to be theoretical then the major content to be taught must be clearly identified and developed in a logical sequence.

If the lesson is a combination of practical and information then the lesson points should be sequenced in a way where the instructor will be able to identify the sequencing of the shop talk and the demonstration (practical) parts of the lesson. The shop talk part of the lesson may be best done at the beginning, during the demonstration, or at the end of the lesson - the writer should select when the shop talk would be given, depending on the topics being taught.

In a combination of practical and information lesson the method(s) used will be a demonstration for the practical and the shop talk for the information. There will be two main times when the use of a shop talk may be desirable. The first is when there is a need for the steps involved in performing a skill or making a project to be explained. During the beginning stages of a course it is often desirable for the steps involved in performing a skill to be demonstrated while during the later stages of a course when trainees are involved in a lengthy project there is often a need to explain certain aspects of the project as well as for the instructor to give a short demonstration.

/The....

The second use of the shop talk is to explain the "why" of doing something. It may involve a short amount of theory directly related to the demonstration, or sometimes it will involve the consequences of performing a skill correctly or incorrectly, or it may be concerned with safety.

- (e) Training Aids The audio-visual aids and models which are available for the lesson should be stated here. Writers should feel free to suggest training aids which could be provided for a lesson as such aids can be made at the ISD Training Aids Centre.
- (f) Assignment An outline of how the trainee will be given the opportunity of applying by practice what he learned from the lesson should be provided here.
- (g) Test on Evaluation How the learning task to be developed by trainee is to be tested should be explained. For some learning tasks it will be best to test then on an individual basis upon completion of the lesson while for others it will be best if a test were provided for a number of successive learning tasks.
- (h) References Any useful sources of information on the material contained in the lesson plan should be indicated to enable instructors to obtain broader information on the material to be taught.

5. Operation Sheet

Operation sheets will be prepared for lesson which will involve the trainees learning practical skills. They are primarily designed to expand upon the lesson points listed in the lesson plan and also to outline the tools, equipment, and materials required by the instructor and the trainees.

Operation sheets will contain the following sections.

- (a) Various small sections at the top of the operation sheet to be used for identification purposes.
- (b) Objectives The objectives will be the same as those on the lesson plan for which the operation sheet will be an expansion.

- (c) Tools, equipment, materials The various tools, equipment and materials which will be needed by the instructor and by the trainers should be stated here. The method of how the trainees should work (singular, in pairs, in threes etc.) should be suggested and the tools etc. listed should be based on the method selected.
- (d) Operating step Explanation, and Safety These three sections are put together because they will be used simultaneously by the instructor when he is teaching the lesson or doing the demonstration.

- (i) Operating steps This section should provide the instructor and trainee with the logical steps to follow to learn the practical skill. The steps should come from a simple common sense analysis of the important steps involved in learning the skill. It is that part of the skill in which something actually happens in progressing the development of the skill- it is not the taking hold of a wing-nut it is the "screw down the wing-nut" the taking hold being a part of screwing down.

In this section if a good AV aid is available be sure and indicate where it can best be used. If it is desirable that the steps be listed on the chalkboard or a chart indicate this in the section.

- (ii) Explanation This section will outline how the instructor will describe to the trainees what is demonstrating and why he is doing what he is doing. This section could also be called key points. Factors which hinder the skill being learned and factors which make the skill easier to do are listed here opposite the appropriate step. These may include how to stand, how to hold, or the rhythm needed to do the step. The explanation of new terms, objects, and concepts should be included here.
- (iii) Safety safety rules, hazards, and the consequences of unsafe activities should be listed here.

/(e)...

- (e) At the bottom of the operation sheet there are a few more small identification sections.

6. Job Sheet

A job sheet will be prepared only for those practical skills which involve the making of an object. It is primarily a sketch or blueprint of the object to be made. The number of job sheets for each object will be determined by the complexity of the object to be made. Information should also be included on the amount and type of material needed to make the object.

7. Information Sheet

Information sheets will be prepared for lessons which are theory or information lessons or for practical lessons which include a shop talk. They are designed to expand upon the lesson points listed in the lesson plan.

When to use an AV aid should be included on the sheets as well as identifying what should be written on the chalkboard.

8. Test Sheet

Test sheets should be prepared to cover all learning tasks. Writers should decide whether a test will be given for a specific learning task or whether a test will cover a number of learning tasks. Tests should be prepared for both practical and theoretical learning and should test the objectives of the lessons.

A SAMPLE COPY OF CURRICULUM DEVELOPMENT

The auto-mechanics (gasoline engine) course which lasts 6 months, is currently broken down into 4 Modular Units:

1. auto-transmission modular unit (1½ months)
2. auto-electricity modular unit (1½ months)
3. gasoline-engine modular unit (1½ months)
4. auto-maintenance service modular unit (1½ months)

Step in developing the course

1. To study the policies and objective of the institute.
2. To study the course outline, the job description and the auto-repair trade standard.
3. To review present modular training units and to enlarge or reduce them where necessary ensuring that each unit is independent and self-contained.
4. To organize and sequence learning tasks and modular units so that the trainees acquire the knowledge and skills effectively and efficiently.
5. Prior to preparing instruction sheets to analyze each learning task to identify both the practical steps and the related knowledge to be taught.

AN EXAMPLE OF A SERIES OF TRAINING UNITS WHICH DIFFER FROM THOSE PRESENTLY IN USE IN A COURSE AT THE I.S.D.'s

The six month auto-mechanics (gasoline engine) course could be broken down into the following modular training units.

1. Auto-electricity system
2. Auto-transmission system
3. Steering-system

/6...

Learning Task Analysis Table

DOING	KNOWING

An example of the use which can be made of this Learning Task Analysis Table follows.

Learning Task Title Battery Services

DOING	KNOWING
1. removing and installing the terminal clamps	1. tools and aids used in battery services
2. cleaning the posts	2. battery servicing safety
3. checking and refilling	3. components and functions, level of the fluid

For the above learning it would appear that there are three "doing" steps or operations involved in battery services:

- 1) Terminal clamp removal and installation
- 2) Cleaning the battery posts
- 3) Checking and refilling the battery posts.

These three operations or steps are the major steps and each can be further broken down into minor or enabling steps. This has not been done for this learning task as the steps are quite simple and not of high importance. The instructors at the ISD's should be quite capable of breaking down these major steps into the minor ones.

4. Suspension -system
5. Brake - system
6. Maintance - services
7. Gasoline - engine system

An Example of Learning Tasks for Module # 1 - The Auto - Electricity System

1. Battery services
2. Battery charging
3. Battery testing
4. Connecting starter circuit
5. Diagnosing and repairing starter circuit
6. Disassembling & assembling and repair the bendix drive on starter motor
7. Disassembling, assembling and repair the overrunning clutch on starter motor.
8. Connecting D.C. charging system
9. Connecting A.C. charging system
10. Diagnosing and preliminary repairing DC generator
11. Diagnosing and preliminary repairing A.C. charging system
12. Adjusting current and voltage of DC generator charging system etc.

The above twelve learning tasks for the auto-electrical system appear to be all practical. However, the learning task examples given previously on pages 17 and 18 were both practical and cognitive, for instance mix mortar by hand (practical) and calculate volumes in mixing concrete (cognitive). To assist in the analysis of a practical learning task and to identify the cognitive and practical elements use the following learning task analysis table. Cognitive tasks have been called DOING while practical tasks have been called KNOWING.

/Learning...

For those learning tasks which are of greater importance and which may result in damage or injury if a major step is done incorrectly a more detailed breakdown in minor steps should be done.

An example of this greater breakdown follows:

Learning task title: Battery charging

DOING	KNOWING
<ol style="list-style-type: none"> 1. removing the terminal 2. opening the cell-cover 3. checking the fluid in each cell 4. connecting the charging machine with battery 5. connecting the charging machine with generator 6. charging battery 7. check electrolyte specific gravity 8. discharging 	<ul style="list-style-type: none"> - charging machine - electrical safety - capacity of battery - hydrometer using and battery charging condition.

Once the learning Task Analysis Table has been completed it can be utilized in writing the instruction sheets. The "Doing" steps will become the major part of the operation sheets while the "Knowing" section will be used as the basis for the information sheets.

/Requirement...

REQUIREMENTS FOR THE WRITERS IN DEVELOPING TRAINING MATERIALS (INSTRUCTION SHEETS)

1. To attend the scheduled orientation in order to acquire information concerning The Project, to receive the prepared materials, and to get acquainted with Scrutinizing Committee members.
2. To carefully study all the requirements and stated criteria on the distributed materials.
3. The writer should submit the draft materials to the scrutinizers based on the set schedule (see the schedule for Work Submission and payment procedures in Appendix A).
4. To submit or take the materials back to make changes, and receive payments from the ILO support personnel, stationed at the Headquarters Building 2nd, Institute for Skill Development, Bing Daeng Tel. 2451323.
5. The submitted materials may type-written or in legible handwriting- preferably in black ink in order to make clear copies.
6. To break Modular UNITS into appropriate Learning Tasks and submit a copy to the ILO support personnel according to the time set. This copy will be sent to the Scrutinizers.
7. To make changes based on the advice given by the scrutinizer before proceeding with further work.
8. To prepare the first set of draft materials (approx. 80 pages) using the instruction sheets developed by the ISD (copies attached in Appendix B) and to submit them to the ILO support personnel at the ISD according to the work submission schedule. To receive them back to make changes based on the advice of the scrutinizers.
9. To prepare further sets of draft materials, submit, and make changes as required until the assignment is accomplished. Payments will be made by the ILO according to the contract schedule.
10. The length of the materials will differ for individual trades. However, the complete materials must have total pages not less than the specification on the contract and be for the required course length.

/11....

11. All material must be written in the Thai language with the exception of technical terms which may be written in English if this is accepted in the trade.
12. The materials will be published by the printing section at the ISD. In case, illustrations are included, the writer has to follow the following requirements:-
 - a. when the illustrations are basic-drawing or preliminary use pencil for the graphic artist's redrawing. If the writer possesses adequate art skills, he can produce them in black-ink (ball-pen is not suitable).
 - b. when the illustrations are free-hand drawing, the writer should produce them in black-ink.
 - c. when the illustration is too difficult to produce by the writer himself, for example a picture of tools or machines etc - the writer may follow the suggestions below:-
 - (1) use tracing-paper to duplicate the needed picture
 - (2) cut the picture out and attach it on the draft material
 - (3) use copy machine to photocopy in black and white and on non-glossy paper
13. It is recommended that the writer use non-absorbent paper such as white-art paper, tracing paper and use Rubber Cement on the back of the picture to attach it to the art paper.
14. In case of illegible handwriting or a poorly drawn picture, upon request, the picture will have to clarify the written material and/or rearrange the picture
15. Be careful of copy-right violation. A bibliography should be included.
16. The name of the writer will appear on the publications, so the correct name should be attached with each of the submitted materials.

PROJECT WORK TIMETABLE AND PAYMENT SCHEDULE

WRITER

COURSE LENGTH & NUMBER	STAGE 1 LISTING OF MODULAR UNITS & TRAINING TASKS	CHECKING + PAYMENT	STAGE 2 SUBMISSION OF 1st MODULAR UNITS (80 pages)	CHECKING + PAYMENT	STAGE 3 SUBMISSION OF AT LEAST 2 MORE MODULAR UNITS (160 pages)	CHECKING + PAYMENT	STAGE 4 SUBMISSION OF AT LEAST 2 MORE MODULAR UNITS (160 pages)	CHECKING + PAYMENT	STAGE 5 SUBMISSION OF AT LEAST 2 MORE MODULAR UNITS (160 pages)	CHECKING + PAYMENT	STAGE 6 (FINAL)	
3 MONTHS (2 Trades)	2 WEEKS	1 WEEK NO PAYMENT	1 MONTH	2 WEEKS 4,000 B	2 MONTHS	3 WEEKS	PROJECT SHOULD BE COMPLETE FINAL PAYMENT OF 11,000 BAHTS WHEN ALL CORRECTIONS MADE.					
6 MONTHS (9 Trades)	3 WEEKS	1 WEEK NO PAYMENT	1 MONTH	2 WEEKS 4,000 B	2 MONTHS	2 WEEKS 8,000 B	2 MONTHS- SUBMISSION OF REST OF M.U.'s (3 TOTAL)	3 WEEKS	PROJECT SHOULD BE COMPLETE FINAL PAYMENT OF 18,000 BAHTS WHEN ALL CORRECTIONS MADE.			
10 MONTHS (5 Trades)	4 WEEKS	2 WEEKS NO PAYMENT	1 MONTH	2 WEEKS 4,000 B	2 MONTHS	2 WEEKS 8,000 B	2 MONTHS	2 WEEKS 8,000 B	2 MONTHS	2 WEEKS 8,000 B	2 MONTHS SUBMISSION OF REST OF M.U.'s (3 TOTAL)	PROJECT SHOULD BE COMPLETE FINAL PAYMENT OF 22,000 Bht WHEN CORRECTIONS MADE.
11 MONTHS (5 Trades)	4 WEEKS	2 WEEKS NO PAYMENT	1 MONTH	2 WEEKS 4,000 B	2 MONTHS	2 WEEKS 8,000 B	2 MONTHS	2 WEEKS 8,000 B	2 MONTHS	2 WEEKS 8,000 B	3 MONTHS SUBMISSION OF REST OF M.U.'s (4 TOTAL)	PROJECT SHOULD BE COMPLETE FINAL PAYMENT OF 27,000 Bht WHEN CORRECTIONS MADE.
SCRUTINIZING COMMITTEE PAYMENTS FOR EACH INDIVIDUAL MEMBER												
3 MONTHS				1,250 B		3,250 B			PROJECT COMPLETE			
6 MONTHS				1,250 B		2,500 B		5,250 B	PROJECT COMPLETE			
10 MONTHS				1,250 B		2,500 B		2,500 B	2,500 B	PROJECT COMPLETE		
11 MONTHS				1,250 B		2,500 B		2,500 B	2,500 B	2,500 B	PROJECT COMPLETE 6,250 B	
											PROJECT COMPLETE 7,750 B	

BUDGET FOR THAI WRITERS & SCRUTINIZING COMMITTEE

Trade Title	Training Period (month)	Monoraria/Budget		
		Writer	Scrutinizing Committee (T)	Scrutinizing Committee (L)
1. Bld Painting	3	15,000	4,500	4,500
2. Furniture Panting	3	15,000	4,500	4,500
3. Masonry	6	30,000	9,000	9,000
4. Plumbing	6	30,000	9,000	9,000
5. Auto Mechanic (diesel)	6	30,000	9,000	9,000
6. Auto Mechanic (petrol)	6	30,000	9,000	9,000
7. Welding/Sheet Metal	6	30,000	9,000	9,000
8. Carpentry	6	30,000	9,000	9,000
9. Furniture Making	6	30,000	9,000	9,000
10. Electrical	6	30,000	9,000	9,000
11. Air-Conditioning & Refrigeration	6	30,000	9,000	9,000
12. Electronics	10	50,000	15,000	15,000
13. Fitter Machinist	10	50,000	15,000	15,000
14. General Fitting	10	50,000	15,000	15,000
15. Lathe Operator	10	50,000	15,000	15,000
16. Auto Body Repair	10	50,000	15,000	15,000
17. Architectural Drawing	11	55,000	16,500	16,500
18. Mechanical Drawing	11	55,000	16,500	16,500
19. Survey	11	55,000	16,500	16,500
20. Advertising Drawing	11	55,000	16,500	16,500
21. Bldg. Construction	11	55,000	16,500	16,500
	TOTAL	825,000	247,500	247,500

	LESSON PLAN	COURSE		PAGE
		MODULAR UNIT		
		LESSON NO.		
	SUBJECT	LEARNING TASK NO.	NO. OF 50 MIN. PERIODS	
OBJECTIVES				
TEACHING METHOD				
LESSON POINTS				
TRAINING AIDS				
ASSIGNMENT				
TEST				
REFERENCES				

	INFORMATION SHEET	COURSE		PAGE
		MODUAR UNIT		
		LESSON NO.		
	SUBJECT	LEARNING TASK NO.		

	JOB SHEET	COURSE		PAGE
		MODULAR UNIT		
		LESSON NO.		
	SUBJECT	LEARNING TASK NO.	OPERARTION NO.	
TRALNEE NAME		DATE	SCALE	

	OPERATION SHEET	COURSE		PAGE
		MODULAR UNIT		
		LESSON NO.		
	SUBJECT	LEARNING TASK NO.	OPERATION NO.	
OBJECTIVES				
TOOLS, EQUIPMENT, AND MATERIAL				
OPERATING STEPS		EXPLANATION		SAFETY

	OPERATION SHEET	COURSE		PAGE
		MODULAR UNIT		
		LESSON NO.		
	SUBJECT	LEARNING TASK NO.	OPERATION NO.	
OBJECTIVES				
TOOLS, EQUIPMENT, AND MATERIAL				
OPERATING STEPS		EXPLANATION		SAFETY

	TEST SHEET	COURSE		PAGE
		MODULAR UNIT		
		LEARNING TASKS TESTED		
	SUBJECT	TEST NO.	TIME FOR TEST	
TRAINEE NAME		DATE		SCORE

JICA