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# MES

CATALOGUE OF  
LEARNING ELEMENTS AND  
RELATED MATERIALS

# 1986



NOTE

Persons interested in further information concerning the M.E.S. concept of Vocational Training are kindly requested to write to ILO Publications, International Labour Office, CH-1211 Geneva 22, Switzerland, for free copies of the brochure:

M.E.S.  
An Approach to  
Vocational Training

Prepared by the  
Vocational Training Branch, ILO Geneva  
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## I N T R O D U C T I O N

For some time there has existed the need for a vocational training system with sufficient flexibility to cope with the changing and varied needs of employers for trained personnel. The ILO's worldwide experience in the planning and execution of vocational training programmes has led to the development of a universal and flexible concept of vocational training called "Modules of Employable Skill" (M.E.S.). In order to implement programmes under this concept, it has been necessary to develop an appropriate form of learning material having the necessary flexibility to enable individualised training programmes to be compiled. This form of learning material is known as the "Learning Element", and a bank of these is under development covering a number of occupational areas. Development work is taking place in collaboration with a number of industries and institutions.

Learning elements are self-contained instructional booklets, each covering a specific learning objective. The amount of learning that each element covers is small, significant and precisely matched to the learning objective. Each element starts with the learning objective, addressed to the trainee, a list of tools, equipment and aids required, together with a list of other learning elements related to it. The instructional pages contain short, concise texts and are highly illustrated. Allowance is made for sufficient practice to master the skill concerned, and the element ends with a progress check precisely matched to the learning objective. Learning elements of this type are also suited to learner-based as well as instructor-based training in training institutions or in-plant programmes. The illustrations used in learning elements are in the form of line drawings to allow for easy reproduction using simple duplicating equipment commonly available. The text is presented in such a way that translations into other languages can easily be accommodated.

Because learning elements are designed to provide training with the flexibility inherent in the M.E.S. system, they can equally well be used for the implementation of any other type of vocational training methodology. The presentation of the learning elements lends itself to easy adaptation into other media (sound/slide, video, etc.), thus extending their application for other purposes, such as the training of illiterates.

Learning elements are being developed initially in the English language and provision is being made for their translation into other languages, for example French, Spanish and Arabic.

Learning elements dealing with general skills such as measuring, marking out and the identification of hand tools are used, in many cases, by more than one occupational area for which they were originally developed. When selecting learning elements you are therefore advised to refer also to other occupational areas. For example, when selecting learning elements for automotive or mechanical engineering you would require the learning element "Identifying Screwdrivers and Their Uses" which is listed under Electrical/Electronic Engineering for which it was originally developed.

The possible use of particular learning elements for other occupational areas as much as could be foreseen, is indicated in this catalogue by letters which are placed behind the title of a learning element.



- The letter "A" means that this learning element can be used for the occupational area of Automotive Engineering;
- The letter "B" for Building Construction;
- The letter "E" for Electrical/Electronic Engineering;
- The letter "M" for Mechanical Engineering; and
- The letter "P" for Plumbing and Pipe Fitting.

Please note that on page 26 of the catalogue are listed learning materials foreseen for the training of instructional staff in all aspects of the implementation of the MES approach to training, which when followed give the maximum benefits.

For the purchase of the learning elements or related materials listed in this catalogue, please refer to the prices and sales conditions quoted on pages 28 and 29. When ordering, either use the order form shown in the catalogue or list the learning elements or other materials you wish to obtain by quoting occupational area, category, ISBN number and the title on a separate sheet of paper. Should you wish to purchase a complete set of learning elements from one particular occupational area, you only have to quote the name of that occupational area.

When ordering learning elements, please indicate if it is your intention to reproduce, translate and/or modify them for commercial or non-commercial use, to enable us to provide you with the appropriate agreement.

The code box on the front cover of each element and at the head of each page is for the moment left blank. However, it is intended that a comprehensive coding system, which will facilitate the compilation of training programmes, will be introduced in the near future. The code numbers will then be inserted in the boxes provided.

The ILO welcomes any comments on the content and structure of the learning elements and any suggestions for their improvement. Industries and Institutes interested in co-operating with the ILO in the joint preparation of learning elements should contact the Vocational Training Branch of the ILO. The ILO will also provide interested parties with advice on the planning and implementation of M.E.S. based training programmes.

## AUTOMOTIVE ENGINEERING

### ISBN No.

#### General

92-2-104089-5	Passenger Car - Main Assemblies
92-2-104090-9	Classifying Motor Vehicles
92-2-104091-7	Installing Low Pressure Flexible Hoses
92-2-104092-5	Spanners, Wrenches - Kinds and Sizes (B.E.M.P.)
92-2-104093-3	Using Spanners/Wrenches (E.M.P.)
92-2-104887-X	Using Dial Indicator for External and Internal Measurement(M)
92-2-104094-1	Using Torque Wrench (M)
92-2-104095-X	Removing Low Pressure Flexible Hoses
92-2-104096-8	Low Pressure Flexible Hose in the Motor Vehicle
92-2-104097-6	Engine - Main Parts and Function
92-2-104098-4	Operation of 4-Stroke Petrol Engine
92-2-104099-2	Passenger Car - Opening/Closing Bonnet
92-2-104100X	Identifying Mobile Lifting Devices and Support Stands and Their Uses
92-2-104101-8	Lifting Up Cars Using Mobile Jacks
92-2-104102-6	Identifying Car Lifts and Their Uses

#### Cylinder Head

92-2-104137-9	Cylinder Head - Petrol Engine
92-2-104138-7	Engine Compression Ratio and Pressure
92-2-104139-5	Valve Operating Mechanism
92-2-104140-9	Valve Timing
92-2-104141-7	Checking Valve Timing
92-2-104142-5	Removing/Installing Valve Covers
92-2-104143-3	Adjusting Valve Clearance
92-2-104144-1	Checking Compression Pressure in the Petrol Engine
92-2-104068-2	Checking Compression Pressure in Diesel Engines
92-2-104145-X	Tightening Cylinder Head Bolts/Nuts
92-2-104850-0	Removing Cylinder Head - Petrol/Diesel Engine

#### Air Filters

92-2-104044-5	Air Filters - Kinds and Purpose
92-2-104045-3	Removing Car Air Filters
92-2-104046-1	Installing Car Air Filters
92-2-104047-X	Oil Bath Filters
92-2-104048-8	Dry Air Filters
92-2-104049-6	Dry Air Filters - Servicing
92-2-104050-X	Oil Bath Air Filters - Servicing



Fuel System

- 92-2-104064-X Fuel Tank  
 92-2-104066-6 Identifying Cylinder Head: Diesel Engine  
 92-2-104067-4 Cleaning/Replacing Diesel Fuel Filter  
 92-2-104069-0 Bleeding the Diesel Engine Fuel System (Line Pump)  
 92-2-104070-0 Bleeding the Diesel Engine Fuel System (Distributor Pump)  
 92-2-104071-2 Removing/Installing Fuel Injectors in Diesel Engines  
 92-2-104073-9 Fuel Feed Pump - Mechanical Diaphragm Type  
 92-2-104888-8 Fuel Feed Pump - Plunger Type  
 92-2-104074-7 Using Venturi Principle for Fuel Carburation  
 92-2-104077-1 Servicing Fuel Feed Pump - Mechanical Diaphragm Type  
 92-2-104079-8 Function of the Variable Choke Carburettor - Stromberg  
 92-2-104080-1 Function of the Constant Depression Carburettor - SU Type  
 92-2-104081-X Fuel Sedimenter  
 92-2-104886-1 Checking Exhaust Emission for HC and CO Content  
 92-2-104056-9 Identifying Environmental Pollution Caused by Motor Vehicles  
 92-2-104057-7 Combustion of Petrol in the Engine  
 92-2-104058-5 Function of the Fixed Choke Carburettor  
 92-2-104059-3 Identifying the Function of the Diesel Fuel Filter  
 92-2-104060-7 Removing/Installing Fuel Feed Pump - Mechanical Diaphragm Type  
 92-2-104062-3 Cleaning the Fuel Tank and Fuel Lines

Ignition System

- 92-2-104001-1 Ignition System  
 92-2-104002-X Spark Plugs  
 92-2-104003-8 Applying Electro Magnetism Theory to the Ignition System  
 92-2-104004-6 Ballasted Ignition System  
 92-2-104005-4 Coil & Condenser  
 92-2-104006-2 Distributor, Contact Breaker, Dwell Angle  
 92-2-104007-0 Distributor Cap, Rotor and High Tension Cables  
 92-2-104008-9 Distributor-Vacuum Advance Mechanism  
 92-2-104009-7 Distributor-Mechanical Advance Mechanism  
 92-2-104010-0 Replacing and Selecting Spark Plugs  
 92-2-104011-9 Cleaning and Gapping Spark Plugs  
 92-2-104012-7 Analysing Spark Plug Face  
 92-2-104013-5 Testing Spark Plug with Plug Tester  
 92-2-104014-3 Removing and Installing Spark Plug  
 92-2-104015-1 Removing, Cleaning and Installing High Tension Cables, Distributor Cap and Rotor  
 92-2-104016-X Checking Coil Polarity  
 92-2-104017-8 Ignition Timing Using Control Lamp  
 92-2-104018-6 Ignition Timing Using Stroboscope Lamp  
 92-2-104019-4 Checking the Ignition System with the Oscilloscope  
 92-2-104020-8 Simple Method of Locating Faults in the Ignition System  
 92-2-104021-6 Servicing Contact Breaker Points  
 92-2-104022-4 Checking High Tension Circuit  
 92-2-104023-2 Setting Points Gap with a Dwell Angle Tester  
 92-2-104024-0 Checking Ignition Coil  
 92-2-104025-9 Checking and Replacing Condenser  
 92-2-104026-7 Replacing Contact Breaker of the Ignition System  
 92-2-104027-5 Checking Contact Breaker Arm Tension

Car Electric

- 92-2-104051-8 Removing Alternator  
 92-2-104052-6 Dismantling Alternator  
 92-2-104053-4 Examining Alternator Rotor  
 92-2-104054-2 Examining Alternator Stator  
 92-2-104055-0 Examining Alternator Rectifier Assembly  
 92-2-104848-9 Removing the Starter Motor  
 92-2-104849-7 Installing the Starter Motor

Battery

- 92-2-104082-8 Lead Acid Battery  
 92-2-104083-6 Cell Action (Lead Acid Type Battery)  
 92-2-104084-4 Servicing the Battery (Lead Acid Type)  
 92-2-104085-2 Putting New Battery into Service  
 92-2-104086-0 Charging Batteries  
 92-2-104087-9 Fast Charging of Battery  
 92-2-104088-7 Removing/Installing Car Battery

Cooling System

- 92-2-104028-3 Cooling System  
 92-2-104029-1 Closed Cooling System  
 92-2-104030-5 Pressurised Cooling System  
 92-2-104031-3 Radiator  
 92-2-104032-1 Water Pump  
 92-2-104033-X Cooling Fan  
 92-2-104034-8 Thermostat, Design and Function  
 92-2-104035-6 Removing/Installing Thermostat  
 92-2-104036-4 Thermostat Checking  
 92-2-104037-2 Removing/Installing Radiator  
 92-2-104038-0 Draining and Re-filling Cooling System  
 92-2-104039-9 Cleaning Radiator and Flushing Cooling System  
 92-2-104040-2 Checking Cooling System for Tightness  
 92-2-104041-0 Checking and Topping Up Coolant Level  
 92-2-104042-9 Preparation of Coolant  
 92-2-104043-7 Rectifying Engine Overheating  
 92-2-104847-0 Removing the Water Pump  
 92-2-104824-1 V-Belt Construction - Adjusting and Replacing

Engine Lubrication System and Lubricants

- 92-2-104103-4 Friction  
 92-2-104104-2 Hydrodynamic Friction  
 92-2-104105-0 Oil Pressure Warning Devices  
 92-2-104106-9 Chassis Lubrication  
 92-2-104107-7 Checking Oil Pressure  
 92-2-104108-5 Engine Oils  
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 92-2-104110-7 Engine Oils - API Classification  
 92-2-104111-5 Transmission Oil  
 92-2-104112-3 Lubricating Greases  
 92-2-104113-1 Replacing/Cleaning Oil Filters  
 92-2-104114-X Engine Lubrication System  
 92-2-104115-8 Changing/Topping Up Engine Oil  
 92-2-104116-6 Oil Filters  
 92-2-104117-4 Changing/Topping Up Transmission Oil



ISBN No.

Clutch System

- 92-2-104871-3 Single/Dual Disc Clutch
- 92-2-104872-1 Removing Clutch Pressure Plate and Disc
- 92-2-104873-X Removing the Flywheel
- 92-2-104874-8 Installing the Flywheel
- 92-2-104875-6 Checking the Clutch Disc
- 92-2-104876-4 Re-lining the Clutch Disc
- 92-2-104877-2 Checking the Flywheel
- 92-2-104878-0 Balancing the Flywheel
- 92-2-104879-9 Removing the Ring Gear
- 92-2-104880-2 Installing the Ring Gear
- 92-2-104881-0 Installing the Clutch
- 92-2-104882-9 Checking and Adjusting Clutch Free Travel
- 92-2-104883-7 Checking the Fluid Level in the Hydraulically Operated Clutch System
- 92-2-104884-5 Bleeding the Hydraulically Operated Clutch System

Power Train

- 92-2-104868-3 Repairing Cross and Roller Universal Joint (Circlip Type)
- 92-2-104869-1 Checking Propeller Shaft/Universal Joint
- 92-2-104859-4 Differential

Brake System

- 92-2-104118-2 Removing and Fitting Wheels
- 92-2-104120-4 Disc Brakes - Replacing Brake Pads on Fixed Caliper Types
- 92-2-104121-2 Disc Brakes - Replacing Brake Pads on Sliding Caliper of Single Piston Type
- 92-2-104122-0 Adjusting Parking Brakes
- 92-2-104123-9 Identifying Drum Brakes and Their Function
- 92-2-104124-7 Identifying Function of Disc Brakes
- 92-2-104125-5 Identifying Parking Brakes
- 92-2-104126-3 Topping Up Brake Fluid
- 92-2-104127-1 Brake Fluid
- 92-2-104128-X Removing/Installing Brake Drums
- 92-2-104129-8 Adjusting Drum Brakes
- 92-2-104130-1 Adjusting Wheel Bearings
- 92-2-104131-X Changing Brake Fluid in the Hydraulic Brake System
- 92-2-104132-8 Bleeding Hydraulic Brake System
- 92-2-104133-6 Inspecting/Cleaning Brake Shoes
- 92-2-104134-4 Identifying Disc Brakes of Fixed Caliper Type
- 92-2-104135-2 Identifying Disc Brakes with Sliding Caliper Assembly
- 92-2-104136-0 Brake System Layout

Tyres

- 92-2-104146-8 Identifying Tyre Types and Their Construction
- 92-2-104147-6 Identifying Tyres - Tube and Tubeless
- 92-2-104148-4 Why Wheel Balancing is Essential
- 92-2-104149-2 Checking Static Wheel Balance
- 92-2-104150-6 Dynamic Wheel Balancing
- 92-2-104151-4 Identifying Tyre Tread for Various Purposes
- 92-2-104152-2 Inspecting Tyres
- 92-2-104153-0 Aquaplaning
- 92-2-104154-9 Identifying Tyre Size, Maximum Tyre Load and Speed Index Letter
- 92-2-104823-3 Checking Tyre Inflation Pressure
- 92-2-104822-5 Tyre Life
- 92-2-104860-8 Removing/Fitting Car Tyres
- 92-2-104166 Repairing Tubes

ISBN No.

Motor Vehicle Driver Training

- 92-2-104155-7 Motor Vehicle Driver Training - Vehicle Knowledge
- 92-2-104156-5 Washing Vehicle Body by Hand
- 92-2-104157-3 Cleaning the Underneath of the Motor Vehicle
- 92-2-104158-1 Waxing Vehicle Body Paint
- 92-2-104159-X Polishing Vehicle Body Paint
- 92-2-104160-3 Cleaning Car Interior
- 92-2-104161-1 Cleaning Engine Compartment
- 92-2-104162-X Loading Goods On Vehicle
- 92-2-104163-8 How to Avoid Brake Failure
- 92-2-104164-6 Economical Driving
- 92-2-104165-4 Parking a Vehicle
- 92-2-104167-0 Replacing Bulbs
- 92-2-104168-9 Replacing Vehicle Fuses
- 92-2-104169-7 Towing a Vehicle
- 92-2-104170-0 Braking Distance
- 92-2-104171-9 Gearbox, Clutch and Their Operation
- 92-2-104172-7 Anchoring a Load
- 92-2-104829-2 Starting the Engine
- 92-2-104851-9 Running in the Motor Vehicle
- 92-2-104853-5 Stopping the Engine
- 92-2-104858-6 Motor Vehicle Daily Inspection



## BUILDING AND CONSTRUCTION

### SAFETY

#### ISBN No.

- 92-2-104809-8 Workshop and Building Site Safety Organisation and Management  
92-2-104811-X Safety-Personal Protective Clothing and Equipment (P.E.)  
92-2-104812-8 Safe Handling and Storing of Building Materials

### TOOLS AND EQUIPMENT

- 92-2-104721-0 Using a Bricklayer's Hammer  
92-2-104722-9 Using a Bricklayer's Trowel (P.E.)  
92-2-104724-5 Using Plumb Bobs and Chalk Lines (P.E.)  
92-2-104725-3 Using a Spirit Level (P.E.)  
92-2-104727-X Marking out Gauge Rods and Storey Poles  
92-2-104728-8 Using Gauge Rods and Storey Poles  
92-2-104729-6 Identifying and Selecting Tools and Equipment Used for Bricklaying/Blocklaying (P.E.)  
92-2-104845-4 Operating Small Capacity Powered Mixers  
92-2-104813-6 Maintaining Small Capacity Powered Mixers  
92-2-104793-8 Identifying Trowels and Their Uses  
92-2-104794-6 Identifying Hammers and Their Uses (P.E.)  
92-2-104795-4 Identifying Chisels and Their Uses (P.E.)  
92-2-104796-2 Identifying Concrete Vibrators and Their Uses  
92-2-104797-0 Identifying Powered Concrete Floating and Finishing Machines  
92-2-104798-9 Identifying Tools and Equipment Used for Placing and Finishing Concrete  
92-2-104800-4 Identifying Hand Operated Saws and Their Uses  
92-2-104801-2 Maintaining Crosscut Saws (P.E.)  
92-2-104802-0 Maintaining Rip Saws (P.E.)  
92-2-104821-7 Using a Crosscut Saw  
92-2-104820-9 Using a Rip Saw  
92-2-104804-7 Using an Adze (P.E.)  
92-2-104806-3 Using Crow, Pry, Ripping and Nail Claw Bars  
92-2-104807-1 Using the Claw Hammer (P.E.)  
92-2-104808-X Maintaining Hammers (P.E.)  
92-2-104828-4 Using Drills, Braces and Bits  
92-2-104805-5 Identifying Drills, Braces, Wood Bits and Their Uses  
92-2-104792-X Operating Mixing Machines (Petrol/Diesel Powered)

### DRAWINGS AND SKETCHES

- 92-2-104819-5 Interpreting Drawings and Sketches of Construction Details

### MASONRY

#### Mixing Mortars

- 92-2-104712-1 Processing Quicklime  
92-2-104713-X Making Lime Putty  
92-2-104714-8 Hand Mixing Mortars (P.E.)  
92-2-104715-6 Machine Mixing Mortars  
92-2-104716-4 Proportioning Materials for Mixing Mortars (P.E.)  
92-2-104718-0 Storing Cement, Lime and Gypsum Plaster  
92-2-104719-9 Identifying, Selecting and Using Common Clay and Concrete Building Units for Brick and Block Construction  
92-2-104720-2 Identifying, Selecting and Using Mortars (P.E.)

#### ISBN No.

### Setting Out

- 92-2-104731-8 Setting Out and Checking Angles Using the 6-8-10 or 3-4-5 Method  
92-2-104732-6 Setting Out for Walls  
92-2-104733-4 Setting Out for Corners and Leads

### Return Corners

- 92-2-104737-7 Building External Return Corners, Half Brick, Stretcher Bond, Racked and Stopped Ends  
92-2-104738-5 Identifying Return Corners (Quoins), Leads and Their Functions  
92-2-104741-5 Identifying Types of Brick Bonds  
92-2-104742-3 Bonding Terminology

### Wall Construction

- 92-2-104745-8 Preparations for Laying Brick  
92-2-104746-6 Fixing a Mason's Line to Wall Guides  
92-2-104747-4 Laying Brick to a Line  
92-2-104748-2 Methods of Laying Brick  
92-2-104810-1 Building a Stretcher Bond Wall 1/2 Brick Wide  
92-2-104760-1 Building a Stretcher Bond Wall with a Pilaster  
92-2-104723-7 Building a Common Bond Wall One Brick Wide  
92-2-104840-3 Building a 2 x 2 1/2 Brick Hollow Pier  
92-2-104730-X Tooling Mortar Joints

### Blocklaying

- 92-2-104752-0 Identifying Types of Concrete Blocks and Their Uses  
92-2-104753-9 Laying Block Using a Line  
92-2-104754-7 Setting Out for a Block Return Corner  
92-2-104755-5 Building a Block Return Corner  
92-2-104757-1 Cutting Brick on Concrete Block Using a Bolster (P.E.)  
92-2-104763-6 Waterproofing Foundation Walls  
92-2-104832-2 Building a 1 1/2 Block Pier

### Plastering

- 92-2-104814-4 Identifying Tools and Equipment Used for Plastering (P.E.)  
92-2-104815-2 Identifying, Selecting and Using Plasters (P.E.)  
92-2-104816-0 Identifying Types of Plaster Backgrounds and Their Uses  
92-2-104817-9 Preparation of Masonry Backgrounds to Receive Plaster  
92-2-104818-8 Forming Plaster Screeds  
92-2-104749-0 Hand Mixing Plaster (P.E.)  
92-2-104803-9 One Coat Plastering, Interior/Exterior (P.E.)

### Stonework

- 92-2-104758-X Identifying Tools/Equipment Used for Dressing/Laying Stone  
92-2-104333-9 Dressing Stone to Form a True Face  
92-2-104334-7 Dressing Stone to Form a Top End Face  
92-2-104335-5 Dressing Stone to a Specific Size



CONCRETINGPlacing

- 92-2-104765-2 Preparation for Placing Concrete at Ground Level  
 92-2-104767-9 Identifying Control Joints and Their Uses in Concrete Construction

Mixing Concrete

- 92-2-104772-5 Hand Mixing Concrete (P.E.)  
 92-2-104773-3 Machine Mixing Concrete  
 92-2-104774-1 Proportioning Materials for Mixing Concrete (P.E.)  
 92-2-104775-X Identifying and Using Common Types of Portland Cement  
 92-2-104776-8 Identifying, Selecting and Using Aggregates for Concretes, Mortars and Plasters (P.E.)

Finishing

- 92-2-104777-6 Striking-Off Excess Concrete using a Straight Edge or Strike-Off Board  
 92-2-104778-4 Consolidating Concrete Using Tampers or Vibrators  
 92-2-104779-2 Bull Floating Concrete  
 92-2-104780-6 Darbying Concrete  
 92-2-104781-4 Edging Concrete  
 92-2-104782-2 Jointing Concrete  
 92-2-104783-0 Hand Floating Concrete (P.E.)  
 92-2-104784-9 Power Floating Concrete  
 92-2-104785-7 Hand Trowelling Concrete (P.E.)  
 92-2-104786-5 Power Trowelling Concrete

Curing

- 92-2-104787-3 Water Curing Concrete  
 92-2-104788-1 Protecting Concrete Using Liquid Membrane Forming Compounds  
 92-2-104789-X Curing Pavements, Roofs, Bridge Decks and Exterior Floors  
 92-2-104790-3 Curing Exterior Walls, Columns and Bridge Piers  
 92-2-104791-1 Protecting and Curing Concrete (P.E.)

CARPENTRY

- 92-2-104917-5 Planing Timber by Hand to Produce a Face Side  
 92-2-104918-3 Planing Timber by Hand to Produce a Face Edge and Face End  
 92-2-104919-1 Dismantling, Assembling and Adjusting a Plane  
 92-2-104920-5 Repairing a Plane Iron Using a Grinding Machine  
 92-2-104921-3 Sharpening a Plane Iron Using an Oilstone  
 92-2-104922-1 Cutting Timber to a Specific Shape Using Wood Chisels  
 92-2-104923-X Identifying Types of Planes and Their Uses  
 92-2-104924-8 Filing Surfaces to the Required Size and Shape  
 92-2-104925-6 Identifying Types of Wood Joints and Their Uses  
 92-2-104926-4 Identifying Types of Files and Their Uses  
 92-2-104889-6 Sharpening a Chisel Using an Oilstone  
 92-2-104890-Y Cutting Curved Lines in Timber Using Compass, Keyhole or Copping Saws  
 92-2-104891-8 Identifying Workbenches and Other Supporting Devices

- 92-2-104892-6 Identifying Defects in Timber  
 92-2-104893-4 Specification of Timber  
 92-2-104894-2 Identifying Tools and Equipment Used When Joining Timber  
 92-2-104895-0 Construction of Halving Joint  
 92-2-104896-9 Construction of Scarf Joint  
 92-2-104897-7 Construction of Dovetail Joint  
 92-2-104898-5 Construction of Mortise and Tenon Joint  
 92-2-104899-3 Identifying Fastening Devices Used to Join Timber  
 92-2-104900-0 Joining Timber Materials by Nailing  
 92-2-104901-9 Joining Timber Materials with Screws  
 92-2-104902-7 Joining Timber Materials with Bolts  
 92-2-104903-5 Joining Timber Materials by Glueing  
 92-2-104904-3 Constructing a Rebate Joint  
 92-2-104905-1 Drilling Holes to a Specific Depth



**ELECTRICAL/ELECTRONIC ENGINEERING**

**Technical Information/Materials/Components/Methods**

**ISBN No.**

92-2-104197-2	Insulated Wires for Electrical Installations (A)
92-2-104198-0	Cables for Electrical Installations and Power Distribution
92-2-104199-9	Flexible Cords and Cables
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92-2-104675-3 Identifying Soldering Tools/Equipment and Materials Used in Plumbing  
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Installing Cold Water Supply (Galvanized Steel)

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92-2-104628-1 Marking Out Pipes and Pipe Layouts Using Rules, Tapes and Straight Edges  
92-2-104629-X Marking Out Pipe Layouts Using Spirit Levels and Water Levels  
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92-2-104632-X Cutting Galvanized Steel Pipes Using a Hacksaw  
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Installing Cold and Hot Water Supply (Copper)

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- 92-2-104913-2 Air Testing on Soil and Drain Pipes Using a Manometer
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# LEARNING MATERIAL FOR M.E.S. STAFF DEVELOPMENT

## SOUND/SLIDE PACKAGES

Set of six packages each consisting of a set of coloured slides (24 x 36 mm), a standard sound cassette and a "storyboard" booklet showing both the texts and the pictures of each package in printed form. The packages listed below are presently available in English. French and Spanish versions are under preparation.

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92-2-104173-5	Programme 1 - An Approach to Training Systems Design
92-2-104174-3	Programme 2 - Introduction to the Modules of Employable Skill Approach
92-2-104175-1	Programme 3 - Implementing Modules of Employable Skill
92-2-104176-X	Programme 4 - Analysing Worker Behaviour
92-2-104177-8	Programme 5 - Developing Learning Materials
92-2-104178-6	Programme 6 - Designing Training Programmes

### Note:

"Storyboard" booklets can be obtained separately for each of the above programmes.

## STAFF DEVELOPMENT LEARNING ELEMENTS

### Introduction

92-2-105000-9	Introduction to M.E.S. Staff Development
	<u>The M.E.S. Concept, its Characteristics and Components</u>
92-2-104182-4	Identifying Key Characteristics and Components of a System Approach to Vocational Training using Modules of Employable Skill (M.E.S.)
92-2-104183-2	Identifying Modules of Employable Skill
92-2-104184-0	Identifying Modular Units
92-2-104187-5	Identifying the Characteristics and Format of Learning Elements
92-2-104188-3	Identifying the Titles, Scope and Categories of Learning Elements

### Job, Tasks, Skills Analysis and the Preparation of M.E.S. Training Programme

92-2-104185-9	Identifying the Steps of Work Performed Within a Modular Unit
92-2-104186-7	Analysing the Steps of Work of a Modular Unit
92-2-104191-3	Identifying Global, National and Specific Occupational Profiles
92-2-104193-X	Preparing Job Specifications for M.E.S. Training
92-2-104190-5	Identifying the Learning Elements Required for a Modular Unit on a Global Basis
92-2-104192-1	Preparing M.E.S. Training Programmes Using M.E.S. Selection Charts
92-2-104195-6	Designing M.E.S. Performance Tests
92-2-104194-8	Preparing Trainee Specifications (Attainments Component)
92-2-104196-4	Preparing M.E.S. Learning Packages

### ISBN No.

## Development of learning elements

92-2-104967-1	Identifying Procedures/Activities and Respective Staff Development Learning Elements for Learning Element Development
92-2-104957-4	Writing Objectives for Learning Elements
92-2-104999-X	Designing Progress Checks for Information and Theory Learning Elements
92-2-104958-2	Designing Assignments and Progress Checks Activity Learning Elements
92-2-104959-0	Determining the Contents of Learning Elements
92-2-104960-4	Preparing the Drafts of Learning Elements
92-2-104936-1	Typing of Learning Elements
92-2-104960-4	Preparing Illustrations for Learning Elements
92-2-104938-8	Preparation of Learning Element Masters
92-2-104939-6	Editing, Technical and Methodological Review of Learning Elements
92-2-104961-2	Printing Storage and Retrieval of Learning Elements
92-2-104941-8	Translation and Adapting Learning Elements to Local Conditions
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92-2-104929-9	Writing Learning Objectives - Domains of Learning
92-2-104930-2	Writing Learning Objectives - Applications

## Preparation for Implementation, Administration, Monitoring and Control of M.E.S. Training Programme

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MODULES OF EMPLOYABLE SKILL  
(M.E.S.)

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