

**Competency Based Curricula
for**

**Short Term Courses based on
Modular Employable Skills (MES)**

**in
Food Processing & Preservation**



**DIRECTORATE GENERAL OF EMPLOYMENT AND TRAINING
MINISTRY OF LABOUR & EMPLOYMENT
GOVERNMENT OF INDIA**

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Skill Development based on Modular Employable Skills (MES)

Background

The need for giving emphasis on the Skill Development, especially for the less educated, poor and out of school youth has been highlighted in various forums. The skill level and educational attainment of the work force determines the productivity, income levels as well as the adaptability of the working class in changing environment. Large percentage of population in India is living below poverty line. One of the important causes is lower percentage of skilled persons in the workforce

The skill development at present is taking place mostly in the informal way, i.e. persons acquire skill at the work-place when they help their parents, relatives and employers etc. Such persons do not have a formal certificate and thus earn lower wages and are exploited by employers. They have come through informal system due to socio-economic circumstances of the family and the compulsions of earning a livelihood rather than attending a formal course. While their productivity is low, their contribution to the national GDP cannot be ignored. If the country can create a system of certification which not only recognizes their skills but also provides education and training in a mode that suits their economic compulsions, it will not only benefit the workforce to earn a decent living but also contribute to the national economy by better productivity of this workforce.

Another related problem to be tackled is large number of students drop outs (About 63% of the school students drop out at different stages before reaching Class-X).

Frame work for Skill Development based on 'Modular Employable Skills (MES)'

Very few opportunities for skill development are available for the above referred groups (out of school youth & existing workers especially in the informal sector). Most of the existing Skill Development programmes are long term in nature. Poor and less educated persons can not afford long term training programmes due to higher entry qualifications, opportunity cost etc. Therefore, a new frame work for Skill Development for the Informal Sector has been evolved by the DGET to address to the above mentioned problems. The **key features of the new frame work for skill development** are:

- ◇ Demand driven Short term training courses based on modular employable skills decided in consultation with Industry
- ◇ Flexible delivery mechanism (part time, weekends, full time)
- ◇ Different levels of programmes (Foundation level as well as skill upgradation) to meet demands of various target groups
- ◇ Central Government will facilitate and promote training while Vocational Training (VT) Providers under the Govt. and Private Sector will provide training
- ◇ Optimum utilisation of existing infrastructure to make training cost effective.
- ◇ Testing of skills of trainees by independent assessing bodies who would not be involved in conduct of the training programme, to ensure that it is done impartially.
- ◇ Testing & certification of prior learning (skills of persons acquired informally)

The Short Term courses would be based on 'Modular Employable Skills (MES)'.

The **concept for the MES** is :

- Identification of 'minimum skills set' which is sufficient to get an employment in the labour market.
- It allows skills up-gradation, multi-skilling, multi entry and exit, vertical mobility and life long learning opportunities in a flexible manner.

- It also allows recognition of prior learning (certification of skills acquired informally) effectively.
- The modules in a sector when grouped together could lead to a qualification equivalent to National Trade Certificate or higher.
- Courses could be available from level 1 to level 3 in different vocations depending upon the need of the employer organisations.
- MES would benefit different target groups like :
 - *Workers seeking certification of their skills acquired informally*
 - *workers seeking skill upgradation*
 - *early school drop-outs and unemployed*
 - *previously child labour and their family*

Age of participants

The minimum age limit for persons to take part in the scheme is 14 years but there is no upper age limit.

Curriculum Development Process

Following procedure is used for developing course curricula

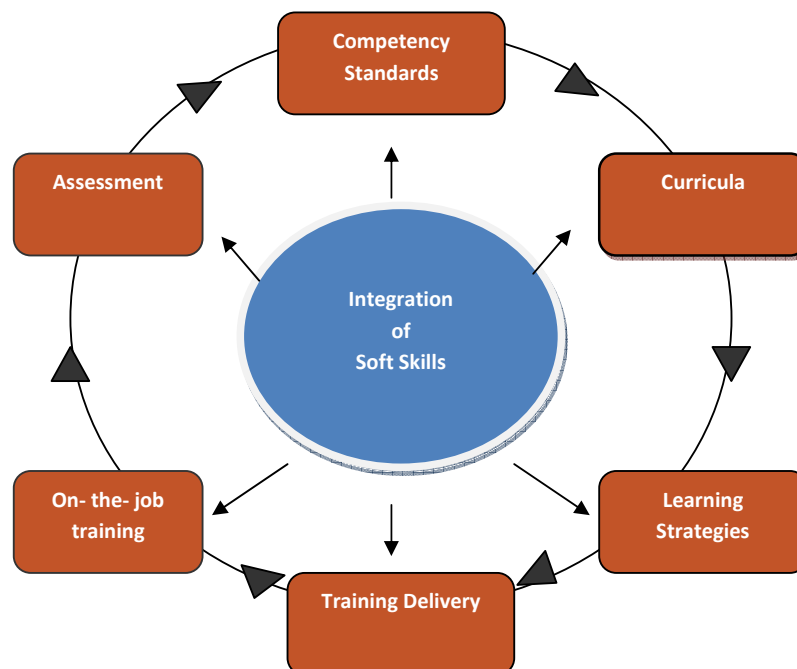
- Identification of Employable Skills set in a sector based on division of work in the labour market.
- Development of training modules corresponding to skills set identified so as to provide training for specific & fit for purpose
- Organization of modules in to a Course Matrix indicating vertical and horizontal mobility. The course matrix depicts pictorially relation among various modules, pre requisites for higher level modules and how one can progress from one level to another.
- Development of detailed curriculum and vetting by a trade committee and by the NCVT

(Close involvement of Employers Organizations, State Governments, experts, vocational training providers and other stake holders is ensured at each stage).

Development of Soft Skills/ Core Competencies

Soft skills refer to a cluster of personality traits, social graces, facility with language, and personal habits that make someone a good employee and a compatible co-worker. Soft skills are also sometimes referred to as employability skills, generic skills, key or core competencies. Soft skills complement hard skills, which are the technical requirements of a job.

Soft Skills are integral to workplace competency and, as such, must be considered in the design, customisation, delivery and assessment of vocational training programmes in an integrated and holistic way, as represented diagrammatically below.



Soft skills are very important in business. Soft skills are now recognised as key for making businesses more profitable and better places to work. Increasingly, companies aren't just assessing their current staff and future recruits on their technical skills but also on a whole host of soft skills. Especially, Service economy and the ascendance of work teams in large organizations put a new premium on people skills and relationship-building. It is essential to be technically sound, but one should also have the ability to convey the idea to the masses in the simplest possible manner.

Hence, systematic efforts should be made to develop soft skills during the training programme. Positive attitudes have to be developed in the trainees by properly guiding them and setting up examples of good attitudes by demonstrated behaviors and by the environment provided during training.

Some important **soft skills / core competencies** to be developed are:

1. Punctuality, discipline and honesty
2. Cordial relationship and Cooperation with co-workers and team Work
3. Positive attitude and behavior
4. Work ethics and dependability
5. Self esteem and confidence
6. Self-motivation and initiative
7. Flexibility/ adaptability
8. Communication Skills
9. Respect for rules and regulations
10. Concern for quality
11. Concern for health and hygiene
12. Responsibility and accountability
13. Care of equipment and tools
14. Safety consciousness and safe working practices
15. Learn continuously
16. Concern for environment and waste disposal
17. Ability to bear stress and work under pressure

Following competencies should also be developed during level-II and higher courses:

1. Ability for planning, organizing and coordinating
2. Creative thinking, problem solving and decision making
3. Leadership, delegating, appraising, motivating
4. Negotiation
5. Time management ability

In addition to above, **livelihood skills** like how to apply for a job, facing an interview, opening/ operating an bank account may also be covered.

Duration of the Programmes

Time taken to gain the qualification will vary according to the pathway taken and will be kept very flexible for persons with different backgrounds and experience. Duration has been prescribed in hours in the curriculum of individual module, which are based on the content and requirements of a MES Module. However, some persons may take more time than the prescribed time. They should be provided reasonable time to complete the course.

Pathways to acquire Qualification:

Access to the qualification could be through:

- An approved training programme; **Or**
- A combination of an approved training programme plus recognition of prior learning including credit transfer; **Or**
- The recognition of prior learning that provides evidence of the achievement of the competencies for the qualification.

Methodology

The training methods to be used should be appropriate to the development of competencies. The focus of the programme is on “performing” and not on “Knowing”.

Lecturing will be restricted to the minimum necessary and emphasis to be given for 'hands on training'.

The training methods will be individual centered to make each person a competent one. Opportunities for individual work will be provided. The learning process will be continuously monitored and feedback will be provided on individual basis.

Demonstrations using different models, audio visual aids and equipment will be used intensively.

Instructional Media Packages

In order to maintain quality of training uniformly all over the country, instructional media packages (IMPs) will be developed by the National Instructional Media Institute (NIMI), Chennai.

Assessment

DGE&T will appoint assessing bodies to assess the competencies of the trained persons. The assessing body will be an independent agency, which will not be involved in conducting the training programmes. This, in turn, will ensure quality of training and credibility of the scheme. Keeping in view the target of providing training/testing of one million persons through out the country and to avoid monopoly, more than one assessing bodies will be appointed for a sector or an area.

Certificate

Successful persons will be awarded certificates issued by National Council for Vocational Training (NCVT).

Basic Food Preservation

Name	:	Basic Food Preservation
Sector	:	Food Processing and Preservation
Code	:	FOO101
Entry Qualification & Age	:	Vth standard, 14 years & above
Duration	:	240 hours
Terminal Competency	:	

- Identify, select, use and store tools, equipments and materials used in Food Preservation in a safe manner.
- Preserve seasonal fruits and Vegetables using drying process
- Produce pickles, Jam, Jelly, Murabbas, Syrups, Squash, Sauces, Chutneys and vinegar

CONTENTS:

Practical Competencies	Underpinning Knowledge(Theory)
<ul style="list-style-type: none">• Use of protective clothing and boots• Maintain personal cleanliness & Hygiene• Carry out basic first aid treatment/notifying accident.• Practice fire safety measures• Simple Disaster Management &	<ul style="list-style-type: none">• Safety precautions, use of protective clothing and elementary first aid.• Importance of personal cleanliness & Hygiene• Reasons for carrying out good housekeeping practices

Practical Competencies	Underpinning Knowledge(Theory)
<p>preventive measures for staff/ guests/ machines in the event of Earthquakes, Tsunami, etc.</p> <ul style="list-style-type: none"> • Identify tools, equipments and materials used in bakery • Apply good house keeping practices, proper handling of materials and disposal of waste, follow statutory regulations. • Store/lay and use materials at work in safe manner • Use and store tools and equipments in a safe manner • Select proper tools, equipment and material for a particular task • Check quality of raw materials as per standards (Materials : fruits, vegetables, sugar, salt, vinegar,) • Prepare the stuff for preservation process according to weight and proportions (Prepare refers to: cleaning, peeling, cutting, pruning blanching, ratio of ingredients, mixing) • Preserve seasonal fruits and 	<ul style="list-style-type: none"> • Functions and uses of various tools, equipment and materials. • Care and use of tools, equipment and materials used in bakery • Selection and correct use of tools and equipment • Proper handling and correct use of hand tools • • Criteria for selection of fruits and vegetables for drying. Estimate of weight, measures, ratio and proportion. Different methods of drying used for domestic and industrial purposes; Advantages and limitations of each method. Equipment and tools used, safety precautions to be taken. Dos and Don'ts during preservation. Quality checks to be carried out. Packing and labeling procedures. • • • Seasonal fruits and vegetables suitable for making pickles. Criteria of selection of fruits and vegetables for making pickles. Quantity and

Practical Competencies	Underpinning Knowledge(Theory)
<p>Vegetables using drying process</p> <ul style="list-style-type: none"> • Pack and label according to regulations • Prepare the stuff for pickles according to weight and proportions (Prepare refers to: cleaning, cutting, ratio of ingredients, mixing) • Prepare pickles of fruits and vegetables using oil, vinegar, salt as preservatives as well as without using oil • Pack, bottle and label according to regulations • Prepare the stuff for Jam, Jelly, Murabbas and Syrups according to weight and proportions [Jam - cleaning, peeling, boiling Jelly - cleaning, boiling, pectin, extraction Murabba - cleaning, soaking pricking, Syrups - mixing (rose and khus)] 	<p>proportion of raw material for different pickles. Equipment and tools used. Methods of preparation of pickles. Dos and Don'ts. Quality checks to be carried out. Packing, bottling and labeling procedures.</p> <ul style="list-style-type: none"> • • Criteria for selection of fruits, vegetable, chemicals and raw materials for Producing Jam, Jelly, Murabbas and Syrups. Proportion of chemical and raw materials required. Equipment and tools used. Methods of preparation of jam, jelly, murabba and syrups in right sequence. Reasons for spoilage, remedies and quality check. Dos and Don'ts. Quality checks to be carried out. Packing, bottling and labeling procedures. • • • Criteria for selection of fruits, vegetable, chemicals and raw materials for producing Squash, Sauces, Chutneys. Proportion of chemical and raw materials required. Equipment and tools used. Methods

Practical Competencies	Underpinning Knowledge(Theory)
<ul style="list-style-type: none"> • Produce Jam, Jelly, Murabbas and Syrups using sugar preservatives • Pack, bottle and label according to regulations • Prepare the stuff for Squash, Sauces, Chutneys according to weight and proportions [Squash - cleaning, peeling Sauces - cleaning, boiling, chutneys - cleaning, peeling, cutting] • Produce Squash, Sauces, Chutneys using chemical preservatives • Pack, bottle and label according to regulations • Prepare vinegars • (Vinegars: synthetic, fermented vinegar, fruit vinegar) • Prepare products from wastes e.g. Vinegar from pineapple waste, pectin from citrus fruits wastes, vinegar and protein isolate mango kernel, starches. • Test quality of products made 	<p>of preparation of Squash, Sauces, Chutneys in right sequence. Reasons for spoilage, remedies and quality check. Dos and Don'ts. Quality checks to be carried out. Packing, bottling and labeling procedures.</p> <ul style="list-style-type: none"> • • • Importance and methods of storage, packaging and bottling • Selection and methods of sterilization of bottles • • Different types of vinegars and methods of vinegar production. Factors involved in producing good quality vinegar. • Processing techniques for proper utilization of wastes from fruits and vegetables.

Practical Competencies	Underpinning Knowledge(Theory)
<ul style="list-style-type: none">• Maintenance and care of equipment• List out the materials required to produce a given product• Estimate cost of materials required• Estimate man power and time required for completing the work• Estimate labour cost, overheads and cost of utilities (Power, water)• Estimate the total cost involved in production of a product.• Identify the possible agencies and other customers, who can purchase. Make a comparative study of the rates of other suppliers. Prepare a label according to requirement.	

List of tools and equipment

(for 20 trainees)

S. No.	Name	Quantify
1	Working table (4 trainees per table)	5 Nos.
2	Demonstration table	1 No.
3	Proper electric & gas connection	As required
4	Cooking range	2 Nos.
5	Plastic tray for keeping ingredients	10 Nos.
6	Aluminium Hundi 10 litre capacity	5 Nos.
7	Sink with drainage board	5 Nos.
8	Measuring jug 1 litre capacity plastic	5 Nos.
9	Measuring cylinder 10 ml capacity borosil glass	5 Nos.
10	Weighing scale	1 No.
11	Chopping board	1 No.
12	S.S Knife	10 Nos
13	S S Strainer	5 No
14	Hand Blender	5 Nos
15	Apple corer & cutter	10 Nos
16	Lemon squeezer Plastic	5 Nos
17	Scissors	5 Nos
18	Muslin cloth	as required
19	Juice Extractor	1 No
20	Funnel	10 Nos
21	Fruit Peeler	5 Nos
22	Rubber Spatula	5 Nos

S. No.	Name	Quantify
23	Wooden Spatula	5 Nos
24	Thermo meter	5 Nos
25	Filler	5 Nos
26	Hand gloves Cotton	10 Nos
27	S S Vessels	10 Nos
28	Perforated Ladle	5 Nos
29	Hand gloves Rubber	10 Nos
30	Respiration Mask Nose and Mouth production	20 Nos
31	Fruits scooper	10 Nos
32	Clean Wiping cloth	10 Nos
33	Vessel Tong	10 Nos
34	Packing and sealing machine (for plastic pack)	1 No
35	Refrigerator and Deep Freezer	1 No
36	Canning Machine for Bottle and Tin Packing	1 No

LIST OF MEMBERS OF TRADE COMMITTEE

1.	S.Subbiah	Joint Director	C E T, Guindy	Chairman
2.	K.Kadirvelu	Deputy Director	C E T, Guindy	Member
3.	V. Rajendran	Vice Principal ,	G.I.T.I(North) Chennai	Member
4.	M.Prakash	Principal	Govt. ITI ,Arakonam	Member
5.	P. Sugumar,	Jr Training Officer	Govt. B.T.C,Ambattur,	Member
6.	S.Lakshmi Kanthan,	Jr Training Officer	Govt. ITI ,Coimbatore.	Member
7.	P. Yogesh	Vice Principal	The Hotel Academy T. Nagar Chennai -17	Member
8.	V. K. Prem Dev Anand	Principal	Mahatma Indl School of Hotel Mgt and Catering Technology ,Velachery, Chennai -42.	Member
9.	A. S. Bhuvananeswari	Principal	Ambal Academy, Kundrathur	Member
10	S.Shanmugam	Chairman	Ambal Academy, Kundrathur	Member
11	G.Vijayamala	Technical Assistant	C E T, CD Cell	Member
12	T.M.Jawaharlal	Secretary	Employees Federation of Southern India	Member