



COMPETENCY-BASED CURRICULUM

FOR THE MODULE OF

MUSHROOM CULTIVATION

**UNDER
MODULAR EMPLOYABLE SKILLS (MES)**

**Government of India
Ministry of Skill Development and Entrepreneurship**

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1. INTRODUCTION

The Ministry of Skill Development and Entrepreneurship is an apex organization for the development and coordination of the vocational training including vocational training for women in our country. The Ministry conducts the training programmes through the Craftsmen Training Scheme (CTS), Apprenticeship Training Scheme (ATS), Modular Employable Scheme (MES) under the Skill Development Initiative (SDI) Scheme, and Craftsmen Instructor Training Scheme (CITS) to cater to the needs of different segments of the Labour market. The National Council for Vocational Training (NCVT) acts as a central agency to advise Government of India in framing the training policy and coordinating vocational training throughout India.

A majority of Indian workforce does not possess marketable skills which is an obstacle in getting decent employment and improving their economic condition. A large number of school drop outs do not have access to skill development for improving their employability. The higher entry requirements and long duration of courses under the formal training system are some of the obstacles for a person of low educational attainment to acquire employable skills.

The Ministry is implementing the Modular Employable Skills (MES) under the Skill Development Initiative (SDI) Scheme to provide vocational training to earlier school leavers and existing workers to develop skilled manpower for the industry. Under the Modular Employable Skills, training to earlier school leavers and existing workers, especially in the unorganised sectors, are to be trained for employable skills. Training is provided by registered Vocational Training Providers (VTPs) under the Government, Private Sector, and Industrial establishments located all over the country. Testing of skills acquired informally by an individual under the scheme is tested by Assessing Bodies. Nationally as well as internationally recognised NCVT certificate is issued to every successful individual.

The key features of the Modular Employable Skills (MES) are:

- Short-term training programmes designed in consultation with the Industry.
- Identification of “minimum skills set” sufficient to get employment.
- Flexible training delivery mechanism (part time, weekend, or full time).
- Different levels of programmes (Foundation level to advanced level).
- Opportunity for lifelong learning.

The training under MES would benefit different target groups like workers seeking certification of their skills acquired informally, workers seeking skill upgradation, and early school dropouts and unemployed. Central Government facilitates and promotes the training

while Vocational Training Providers (VTP) under the Govt. and Private Sector provide the training. Testing of skills is done by independent Assessing Bodies to ensure impartiality.

The National Skills Qualification Framework (NSQF), published in the Gazette of India on 27th December, 2013, is a national framework that aims to integrate general and vocational streams of education and training. The main thrust of the NSQF is to focus on competency-based qualifications. The National Skill Development Agency (NSDA) under the Ministry is responsible for the implementation of the Framework, by bringing together the key stakeholders through the National Skill Qualifications Committee (NSQC).

The competency-based framework organizes qualifications into ten levels, with the entry level being 1, and the highest level being 10. Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are (1) Process, (2) Professional knowledge, (3) Professional skill, (4) Core skill, and (5) Responsibility. The paradigm shift from learning focused on inputs to an outcome/competency-based education would help in the Recognition of Prior Learning (RPL), and simultaneously enable the alignment of the Indian qualifications with international ones. Government funding is expected to be on a preferential basis for NSQF compliant courses. The NSQF notification provides a Qualification Register, which is the official national database of all qualifications aligned to NSQF levels. Through this Register, learners can expect access to all NSQF compliant qualifications.

The Ministry has set up Mentor Councils to focus on courses under NCVT in various sectors with representation from thought leaders among different stakeholders viz., industries, innovative entrepreneurs who have proved to be game-changers, academic/professional institutions, and champion ITIs for each of the sectors. The Mentor Council for each sector reviews curricula, admission criteria, course duration, and requirement of trainers and assessment/evaluation systems for the sector on a continuous basis and make recommendations regarding the same. Sector-wise Core Groups are formed to plan and prepare the documentation for the competency-based curricula for the courses under each sector.

2. JOB ROLES

BRIEF DESCRIPTION OF JOB ROLES

This course is meant for the candidates who aspire to become a Mushroom Cultivator and get employment accordingly..

3. NSQF LEVEL COMPLIANCE

The Broad Learning outcomes of MUSHROOM CULTIVATION trade under MES matches with the Level descriptor at Level- 3.

The NSQF level-3 descriptor is given below:

LEVEL	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
Level 3	Person may carry out a job which may require limited range of activities routine and predictable	Basic facts, process and principle applied in the trade of employment	recall and demonstrate practical skill, routine and repetitive in narrow range of application	Communication written and oral, with minimum required clarity, skill to basic Arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment	Under close supervision Some Responsibility for own work within defined limit.

4. GENERAL INFORMATION AND COURSE STRUCTURE

- 1 Qualification : MUSHROOM CULTIVATION
- 2 MES Code No. : AGR132
- 3 NSQF Level :Level 3
- 4 Duration of Modular Training :180hrs.
- 5 Entry Qualification :Passed 5th Class + 14 years of age
- 6 Trainees per unit :20

Distribution of training on Hourly basis:

Sl. No.	Broad Practical components to be covered	Duration (in Hrs)
1.	Mushrooms, benefits and its cultivation	40
2.	Procedure for Mushroom cultivation	100
3	Post Harvesting cares and precautions	40
	Total	180

5. General Training Plan, Assessment & Certificate

General Training Plan

The skills stated in assessment outcome are to be imparted in accordance with the instructions contained within Section in respect of the content and time structure of the vocational education and training (General Training Plan).

Assessment

DGT 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 throughout the country and to avoid monopoly, more than one assessing bodies will be appointed for a sector or an area.

Candidates are to demonstrate that they are able to:

1. plan and organize work processes, identify necessary materials and tools;
2. perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
3. apply professional knowledge and soft skills& entrepreneurship while performing the task.
4. check the job for accuracy, identify and rectify errors in job.

The details of the assessment standard are as per section.

Certificate

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

6. SYLLABUS CONTENT WITH TIME STRUCTURE

8.1 FOR THE MODULE OF MUSHROOM CULTIVATION

Duration: 180 hrs

Terminal Competency

After successful completion of training, the person will be able to: -

- To produce different kind of mushrooms

Detailed Syllabus:

<i>Practical</i>	Theory
<i>Selection and Processing of straw for bed preparation</i>	Knowledge of General Safety, health and hygiene Importance of Mushroom, scope, past, present status & future prospects. Pros & cons in Mushroom cultivation: why the Mushroom cultivation? Problems in mushroom cultivation & its remedies. Mushroom for health: ingredients in mushroom, i.e. Protein, Carbohydrate, Fiber, Fat, Vitamins, Minerals etc. Types of Mushroom. Poisonous Mushroom. Cultivation of Paddy Straw Mushroom and ingredients used Oyster Mushroom Cultivation and ingredients used. Milky Mushroom Cultivation and ingredients used. Button Mushroom cultivation and ingredients used
Sterilization process practice	
Preparation of beds for cultivation of various mushrooms and its maintenance	
Growing and Identification of viable Spawn	
Post Harvesting care and processing Visit to Mushroom farms	Preservation of Mushroom. Economics of Mushroom cultivation.

7. INFRASTRUCTURE

1. Instructors' Qualification	a) NTC/NAC in the trade with three years' experience in the relevant field. OR b) Diploma in Agriculture field with two years' experience in the relevant field.
2. Desirable qualification	Preference will be given to candidates with CITS in relevant trade.
3. Space Norms	a) Work shop: 56 Sq. Meter b) Class Room: 30 Sq. Meter
4. Power Norms	4 kW
5. Tools, Equipment & General Machinery	(As per Annexure I)

8. ASSESSMENT STANDARD

10.1ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. Due consideration shall be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/wastage as per procedure, behavioral attitude, sensitive to environment and regularity in training. The sensitivity towards OSHE and self-learning attitude shall be considered while assessing competency.

Assessment will be evidence based comprising the following:

- 1) Job carried out in labs/workshop
- 2) Record book/ daily diary
- 3) Answer sheet for assessment
- 4) Viva-voce
- 5) Progress Chart
- 6) Attendance and punctuality
- 7) Assignment
- 8) Project work

Evidence of internal assessment should be preserved for an appropriate period of time for audit and verification by examination body.

The following marking pattern to be adopted while assessing:

a) Weightage in the range of 60-75% to be allotted during assessment under following performance level:

For performance in this grade, the candidate with occasional guidance and showing due regard for safety procedures and practices, has produced work that demonstrates attainment of an acceptable standard of craftsmanship. In this work there is evidence of:

- Demonstration of good skill in the use of hand tools, machine tools, and workshop equipment
- Below 70% tolerance dimension achieved while undertaking different work with those demanded by the component/job.
- A fairly good level of neatness and consistency in the finish
- Occasional support in completing the project/job.

b) Weightage in the range of above75%- 90% to be allotted during assessment under following performance level:

For this grade, the candidate, with little guidance and showing due regard for safety procedures and practices, has produced work that demonstrates attainment of a reasonable standard of craftsmanship. In this work there is evidence of:

- Good skill levels in the use of hand tools, machine tools, and workshop equipment
- 70-80% tolerance dimension achieved while undertaking different work with those demanded by the component/job.
- A good level of neatness and consistency in the finish
- Little support in completing the project/job

c) Weightage in the range of above 90% to be allotted during assessment under following performance level:

For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship. In this work there is evidence of:

- High skill levels in the use of hand tools, machine tools, and workshop equipment
- Above 80% tolerance dimension achieved while undertaking different work with those demanded by the component/job.
- A high level of neatness and consistency in the finish.
- Minimal or no support in completing the project.

Annexure - I
List of Tools & Equipment for module: MUSHROOM CULTIVATION

For a batch of 20 trainees + 1 Instructor

Sl. No.	Item	Quantity
1.	Measuring tape	05 no
2.	Mushroom Grow Rooms	02 nos
3.	Exhaust Fan	01
4.	Desert cooler	01
5.	Thermometers	02 no
6.	Hygrometers	02 no
7.	Luxmeter	02 no
8.	Box for Mushroom Transportation	01 set
9.	Straw immersion tank	01 no
10.	Tulu Pump set	01 no
11.	Sprayer	01 no
12.	Chaff Cutter	03 nos
13.	Bamboo for platform	as required
14.	Polythene	as required
15.	Paddy straw	as required
16.	Spawn bottles	as required
17.	Chemicals for sterilization and processing	as required
18.	Weighing balance	01 no

ANNEXURE-II

GUIDELINES FOR INSTRUCTORS AND ASSESSORS

1. Due care to be taken for proper & inclusive delivery among the batch. Some of the following method of delivery may be adopted:
 - A) LECTURE
 - B) LESSON
 - C) DEMONSTRATION
 - D) PRACTICE
 - E) GROUP DISCUSSION
 - F) DISCUSSION WITH PEER GROUP
3. Maximum utilization of latest form of training viz., audio visual aids, integration of IT, etc. May be adopted.
4. The total hours to be devoted against each topic may be decided with due diligence to safety & with prioritizing transfer of required skills.
5. Assessment may be based on following instructions:-

Sl. No.	Question on different aspect	Weightage in %age
1	Knowledge	15
2	Understanding Theory	15
3	Practical Execution	70

1. Due weightage to be given to all the topics under the syllabus while assessing.

9. LIST OF TRADE COMMITTEE MEMBERS

SI No.	Name of the Member & Designation S/Shri	Representing Organization with full address	Signature
01	Swapn Mohapatra, Director	HDF Gramin ITC, Balasore	Chairman
02	R.K.Das Mohapatra, Horticulturist	Dept. of Horticulture, Mayurbhanj, Orissa	Member
03	Rabi Narayan Senapati, Soil Chemist	Soil Management Office, Mayurbhanj	Member
04	Nirmalendu Das Expert	Institute of Biofertiliser, Balasore	Member
05	Bijoy Kumar Das, Ex- Horticulturist	Govt. of Orissa	Member
06	Dr. Ranjoy Kumar Giri, Ex- Agro Officer	Soil Conservation Deptt., Govt. of Orissa	Member
07	Ranjan Kumar Kar, SMS (Forestry)	Krishi Vigyan Kendra, Balasroe	Member
08	T.R.Mohanty, Senior Manager	Agro Industry, Orissa	Member
09	Dr. A.K.Sanigrihi, Scientist	DRDO, Balasore	Member
10	Dr. Sangram Keshari Swain, Programme Co-ordinator	Krishi Vigyan Kendra, Balasroe	Member
11	K.M.Pattanaik, Retd. Addl. Director	DTET, Govt. of Orissa	Member
12	Er. N.R.Pattanaik, Principal	I.T.I., Balasore	Member
13	Dilip Ranjan Sarangi, Soil Chemist	Soil Management Office, Mayurbhanj	Member
14	Sudarsan Das, Trustee & Secretary	HDF Gramin ITC, Balasore	Member
15	Mrs. Sanghamitra Pattanaik, Senior Manager	Horticulture Deptt., Krishi Vigyan Kendra, Govt. of Orissa	Member
16	Dr. Dinabandhu Mohapatra, Chief Dev. Officer	Animal Husbandry Deptt., Govt. of Orissa	Member
17	Pradip Chandra Das, Retd. Asstt. Agricultural Officer	RIT, Bolangir	Member
18	Mrs. Manasi Bhol, Senior Manager	Horticulture Deptt., Krishi Vigyan Kendra, Govt. of Orissa	Member
19	Dr. Deep Choudhury, Retd. Chief Dev. Officer	Animal Husbandry Deptt., Govt. of Orissa	Member
20	Dr Keshab Chandra Panda, Principal	HDF, Gramin ITC, Balasore	Member
21	Dr. Dayanidhi Patra	People for animal	Member
22	Santosh Kumar Maharana, Training Officer	DDA. Baripoda	Member
23	Hrushikesh Mahanty, Instructor	HDF Gramin ITC, Balasore	Member
24	Bhupati Kumar Patra	HDF Gramin ITC, Balasore	Member
25	Debasish Mahapatra	HDF Gramin ITC, Balasore	Member

26	Radhagovinda Puan	VS, Badasdhi	Member
27	Bimbadhar Dwibedy,	Dairy Entrepreneur	Member
28	Rabindra Nath Patra, Coordinator	HDF Gramin ITC, Balasore	Member
29	Haribandhu Biswal, Deputy Director	Horticulture Dept. Govt. of Orissa	Member
30	Tushan Ranjan Mohanty	HDF Gramin ITC, Balasore	Member
31	Dilip ranjan Sarangi	HDF Gramin ITC, Balasore	Member
32	Kishore Chandra Sahu	Krishi Bigayn Kendra, Mayurbhanj	Member
33	Sachindra Dalabehera, Instructor	HDF Gramin ITC, Balasore	Member
34	G Giri, Deputy Director	RDAT, Salt Lake, Kolkata	Member
35	R.N.Manna, T.O.	CSTARI, Salt Lake, Kolkata	Member