

## Syllabus for Knitting Machine Operator for Garment manufacturing

<b>Course Name</b>	Knitting Machine Operator for Garment manufacturing
<b>Sector</b>	APPAREL, MADE-UPS & HOME FURNISHING
<b>Course Code</b>	APL/2024/KMOM/281
<b>Level</b>	3
<b>Occupation</b>	Knitting Machine Operator for Garment manufacturing
<b>Job Description</b>	Knitting machine operator for garment manufacturing plays the role in the production process by setting up, operating and maintaining knitting machines to produce high-quality knitwear. They are also responsible for preparing machines for production runs, monitoring operations, conducting quality checks on knitted fabrics and ensuring the efficient and smooth functioning of the knitting process.
<b>Course Duration</b>	<b>Total Duration 390 Hrs (T-90, P-180, OJT-60 and ES-60)</b>
<b>Trainees' Entry Qualification</b>	Grade 10 OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject OR 8th grade pass with 2 yrs relevant experience OR Previous relevant Qualification of NSQF Level 2 with one yr experience OR Previous relevant Qualification of NSQF Level 2.5 with 6 months experience
<b>Trainers Qualification</b>	Degree in Textile/ Fashion & apparel Technology from UGC recognized university with one-year experience in the relevant field. OR 3 years Diploma in Apparel / Fashion /Garment technology from recognized board of education with two-year experience in the relevant field. OR NTC/ NAC passed in Dress Making /Sewing Technology with three-year experience in the relevant field

**Structure of Course:**

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	Total (Hrs) [Multiple of 30]
1	<b>Introduction and Reorganization of Sewing Machines for knitted fabrics</b>	Describe the fundamental principles and practices involved in Knitting machine operation for garment manufacturing with the role and responsibilities of the operator	10	20	30
2	<b>Maintenance of Machine and work place</b>	Maintain tools and machines along with work area with safe working practices	20	40	60

3	<b>Knitted Fabric sewing preparation and planning</b>	Plan and prepare sewing of knitted fabric by setting up sewing machines	20	40	60
4	<b>Stitching knitted fabrics</b>	Execute the technique of stitching of knitted materials	20	40	60
5	<b>Quality of construction of the constructed product of knitted fabric</b>	Demonstrate the proficiency in constructed product with a focus on flawless quality	20	40	60
6	<b>OJT</b>	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	--	60	60
7	<b>Employability Skill</b>	As per guided curriculum	60	--	60
<b>TOTAL</b>			<b>150</b>	<b>240</b>	<b>390</b>

**SYLLABUS:****Module No. 1: Introduction and Reorganization of Sewing Machines for knitted fabrics**

**Outcome:** Describe the fundamental principles and practices involved in knitting machine operation for garment manufacturing with the role and responsibilities of the operator

**Theory Content:**

- Introduction about apparel industry, its scope and opportunities
- Roles and opportunities of "Knitting Machine Operator for Garment manufacturing"
- Apparel production process and the role of Knitting Machine Operator for knitted fabric in this.
- Explain the job scope in apparel industry
- Different types of sewing machine, Knitting machines and their uses
- Precision in stitching techniques
- Commitment on quality control
- Collaboration in team settings
- Efficient workflow
- Follow organization procedures and maintain personal health and hygiene.

**Practical Content:**

- Familiarization to Industrial model lock stitch Sewing Machine and other machines for knitted fabrics.
- Importance of Safety and General precaution
- Demonstrate various Knitting machine and sewing machine with functions
- Procedure for set up machine operation
- Stitching techniques
- Process of knitting
- Understand the teaching guideline in safe manner in different machines
- Material handling
- Production target and time management

- Identify and follow professional grooming and hygiene
- Work with correct posture

**Tools & Equipment needed :**

Sewing Machine , Models, White Board, Marker & Duster, Lock Stitch Machine, Over lock Machine  
Flat Lock Machine, Inter Lock Machine

**Module No. 2:** Maintenance of Machine and work place

**Outcome:** Maintain tools and machines along with work area with safe working practices

**Theory Content:**

- Safe working practices for cleaning and maintenance of equipment's
- Identify different types of cleaning equipment and substance their use
- Identify different ways of minimize wastage
- Identify different types of lubricant for cleaning
- Describe types of specialized mechanism of sewing machines (Treadle, Industrial machines)
- Explain Health and Safety in the work place
- Explain importance of complain with Healthy, Safety related instructions
- Describe hazards like physical injuries etc.
- Check the work place and work process
- Describe various personal protective equipment like nose musk, hand gloves etc.

**Practical Content:**

- How to manage materials and tools safely and correctly
- Use correct and lifting and handling procedures
- Regular maintenance of tools and equipment's
- Safe working practice for the cleaning and maintenance of equipment
- Work with correct posture
- Use cleaning lubricant for machine and equipment maintenance
- Explain Health and Safety in the work place
- Identify the best use of materials and their wastage
- Maintenance, cleaning of tools and equipment's
- Correct machine guards are in the proper place
- Dispose waste safely in the proper place
- Identify how to use different tools and equipment related to stitching like scissors, thread cutters etc. safely and securely.
- Practice of safe and secure handling of stitching machines and related tools and equipment like thread cutter, shears seam rippers etc.
- Practice stitching of knitted fabric and should have knowledge about stitching.
- Identify stitching defects and remedies and use of scissors, thread cutter etc.

**Tools & equipment needed:** Sewing Machine

Sewing Machine , Lock Stitch Machine, Over lock Machine, Flat Lock Machine, Inter Lock Machine, Scissors, Scale 24", Leg Shaper, Hip Curve, French Curve, L Scale, Prinking Shears, Stitch Opener, Marking Wheel, Models, White-Board/Smart Board, Marker, Duster, Stitch guard, Machine guard, Looper, Bobbin, Bobbin Case, First-aid Kit, Fire Extinguisher, Screw Driver Set

**Module No. 3: Knitted Fabric sewing preparation and planning**

**Outcome:** Plan and prepare sewing of knitted fabric by setting up sewing machines

**Theory Content:**

- Knowledge about planning of sewing process according to the knitted fabric product.
- Description and demonstration of various types of Sewing Machine such as 4-thread Over-lock Machine, 5-thread Over-lock Machine, Flat Lock Machine, Chain Stitch Machine, Single Needle Lock Stitch Machine etc. should have knowledge about the process of stitching, threading of all types of machines.
- Before stitching check the thread quality and colour according to the knitted fabric.
- Should know the process of operating of all types of Machines.
- Knowledge about various types of knitted fabrics like lycra, cotton, jersey knit etc.
- Knowledge about various types of needles, bobbin and winding systems, machine control and work aids etc.

**Practical Content:**

- Learn and practice, how to operate interlock, flat lock, over-lock etc. different types of machines and practice handling methods.
- Perform machine set up according to type of production of garment.
- While stitching garments or other things learn how to minimize the wastage.
- Before stitching garments identify the fabric defects like holes, stains, broken ends, streaks etc.
- Identify and know the process of attachments of different of machine attachments for piping rib collars, lip etc.

**Tools & Equipment needed:**

Sewing Machine , Lock Stitch Machine, Over lock Machine, Flat Lock Machine, Inter Lock Machine, Scissors, Scale 24", Leg Shaper, Hip Curve, French Curve, L Scale, Prinking Shears, Stitch Opener, Marking Wheel, Models, White-Board/Smart Board, Marker, Duster, Stitch guard, Machine guard, Looper, Bobbin, Bobbin Case, Screw Driver Set

**Module No. 4: Stitching knitted fabrics**

**Outcome:** Execute the technique of stitching of knitted materials

**Theory Content:**

- Demonstration of sewing process on knitted fabrics and also quality of stitching.
- Give knowledge about different types of sewing machine (Single Needle Lock Stitch Machine and also about Button Hole maker Machine, Button Attaching machine) etc.
- Process of layout of knitted fabrics to get productive work.
- Knowledge about selection of appropriate attachments according to the garment requirements like binder, folder, and essential mechanism tools etc.
- Knowledge about complex stitching operation with precision and accuracy.

**Practical Content:**

- Practice the process of sequence followed for knitted fabric garment and also home furnishing articles, their construction and stitching process.
- Knowledge and practice about stitch types (lock stitch, chain stitch etc.) seam quality (seam slippage, seam strength) etc
- Maintain correct stitching according to the knitted materials correct sequence as required by the product specification as per the specified stitch type (hem and seam).
- Maintain the stitched product conforms to shape and size according to the requirement.

**Tools & Equipment needed:**

Sewing Machine , Lock Stitch Machine, Over lock Machine, Flat Lock Machine, Inter Lock Machine, Scissors, Scale 24", Leg Shaper, Hip Curve, French Curve, L Scale, Prinking Shears, Stitch Opener, Marking Wheel, Models, White-Board/Smart Board, Marker, Duster, Stitch guard, Machine guard, Looper, Bobbin, Bobbin Case, Screw Driver Set, Knitted fabrics, Rill Thread, Machine Needles, Buttons, Basic stationery.

**Module No. 5: Quality of construction of the constructed product of knitted fabric**

**Outcome:** Demonstrate the proficiency in constructed product with a focus on flawless quality

**Theory Content:**

- Knowledge about the quality of stitch for complete product of knitted fabric.
- Knowledge about the stitch due to broken needle and process of rectification.
- Explain the result for incorrect setting in the machine for knitted fabric and rectification process.
- Explain the result for incorrect setting in the machine for knitted fabric and rectification process.
- Remedy process for incorrect stitch in the knitted fabrics.
- Give knowledge about the quality control of the knitted fabric product.
- Explain the proper inspection method.

**Practical Content:**

- According to the knitted fabric selection of correct needle.
- Learn various characteristic of needles, (like needle number, needle thickness etc.) and method of selection of needle according to the knitted fabrics
- Practice stitching according to the seam allowance and maintain the quality of stitching.
- Learn about the faults and processing of remedies of sewing machines to maintain the quality of stitch.
- Learn and practice of the proper adjustment in the sewing machine to get quality stitch.
- Practice proper process of quality checking.

**Tools & Equipment needed:**

Sewing Machine , Lock Stitch Machine, Over lock Machine, Flat Lock Machine, Inter Lock Machine, Scissors, Scale 24", Leg Shaper, Hip Curve, French Curve, L Scale, Prinking Shears, Stitch Opener, Marking Wheel, Models, White-Board/Smart Board, Marker, Duster, Stitch guard, Machine guard, Looper, Bobbin, Bobbin Case, Screw Driver Set

**Module 6 : OJT**

**Outcome:** Work in real job situation with special emphasis on basic safety and hazards in this domain

**Practical Content:**

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for **60 Hours**.)

**Module 7: Employability Skills (60 Hrs)****Key Learning Outcomes****Introduction to Employability Skills**

Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

**Constitutional values - Citizenship**

Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

**Becoming a Professional in the 21st Century**

Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

**Basic English Skills**

Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

**Career Development & Goal Setting**

Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

**Communication Skills**

Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

**Diversity & Inclusion**

Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

**Financial and Legal Literacy**

Duration:5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
  
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

**Essential Digital Skills**

Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

**Entrepreneurship**

Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

**Customer Service**

Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

**Getting Ready for apprenticeship & Jobs**

Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

**Learning Outcome – Assessment Criteria**

Module No.	Outcome	Assessment Criteria
1	Describe the fundamental principles and practices involved in Knitting machine operation for garment manufacturing with the role and responsibilities of the operator	After completion of this module students will be able to: 1.1 Explain the job scope of the apparel industry 1.2 Describe the roles and responsibility of Industrial Garment Manufacturing Operator 1.3 Illustrate basic trade terminology and their uses 1.4 Explain the difference between Domestic and Industrial Garment Manufacturing operation 1.5 Demonstrate the functions of sewing machine 1.6 Identify different types machine to be use 1.7 Interpret work instructions and specifications 1.8 Identify and follow professional grooming and hygiene
2	Maintain tools and machines along with work area with safe working practices	After completion of this module students will be able to: 2.1 Clean and maintain the equipment & tools. 2.2 Explain various machines used for industrial garment manufacturing 2.3 Maintain the company's quality standards. 2.4 Follow correct lifting and handling procedures with material 2.5 Follow safe working practices and organizational procedures 2.6 Explain Health and Safety in the work place 2.7 Identify the best use of materials and their wastage 2.8 Demonstrate awareness of emergency procedure 2.9 Ensure correct use of personal protective equipment (PPE)
3	Plan and prepare sewing of knitted fabric by setting up sewing machines	After completion of this module students will be able to: 3.1 Demonstrate sewing process for knitted fabric products considering fabric types, stitches and production requirements 3.2 Describe various sewing machines and explain their working process 3.3 Check the quality and color of thread, ensuring alignment with characteristics of the knitted fabric 3.4 Perform machine setup according to the type of garment production 3.5 Minimize wastage while stitching garments or other products 3.6 Identify fabric defects such as holes, stains, broken ends etc. 3.7 Identify the process of attaching different machine attachments for piping, rib collars, lips etc.



Module No.	Outcome	Assessment Criteria
4	Execute the technique of stitching of knitted materials	4.1 Demonstrate the sewing process on knitted fabrics 4.2 Provides layout process of knitted fabrics to achieve productive work 4.3 Select appropriate attachments such as binders, folders and essential mechanism tools based on garment requirements. 4.4 Demonstrate complex stitching operations with precision and accuracy. 4.5 maintain correct stitching according to the properties of knitted materials 4.6 Examine that the stitched product conforms to the required shape and size according to the specified standard.
5	Demonstrate the proficiency in constructed product with a focus on flawless quality	After completion of this module students will be able to: 5.1 Demonstrate expertise in specialized stitching and working procedure of different knitting machine. 5.2 Display precise and careful handling of specialized materials, ensuring minimum waste 5.3 Demonstrate various types machine attachments 5.5 Maintains consistency in producing flawless quality across different variations 5.6 Follow adherence to industry standards 5.7 Select the correct needle based on the characteristics of the knitted fabric 5.8 Describe various characteristics of needles 5.9 Identify various common faults in sewing machines affecting stitch quality 5.10 Identify and rectify stitching defects and ensuring the final product meets established quality standard.
6	OJT	Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for <b>60 Hours.</b> )
7	Employability Skill	As per guided curriculum

**List of Tools, Equipment & materials needed for 30 Trainees (Practical)**

SI No	Items Name	Specification	Qty
1	Sewing Machine	Single needle lock stitch industrial model	15 Nos.
2	Lock Stitch Machine		15Nos.
3	Over lock Machine	5 thread	4Nos.
4	Flat Lock Machine		4Nos.
5	Inter Lock Machine		2Nos
6	Scissors		15 + 15 Each
7	Scale 24"		15 Nos.
8	Leg Shaper		15 Nos.
9	Hip Curve		15 Nos.
10	French Curve		15 Nos.
11	L Scale		15 Nos.
12	Prinking Shears		1 Nos.
13	Stitch Opener		15 Nos.
14	Marking Wheel		15 Nos.
15	Models	UK Standard 12 Size. M-1, F-1	02 Nos.
16	White-Board/Smart Board		01 No.
17	Marker		01 Doz
18	Duster		05 Nos.
19	Stitch guard		05 Nos.
20	Machine guard		05 Nos.
21	Looper		05 Nos.
22	Bobbin		30 Nos.
23	Bobbin Case		15 Nos.
24	First-aid Kit		02 Nos.
25	Fire Extinguisher		01 No.
26	Screw Driver Set		02 Nos.

**Marks Distribution**

<b>Outcome</b>	<b>Outcome Code</b>	<b>Total Th marks</b>	<b>Total Pr marks</b>	<b>Total OJT marks</b>
Describe the fundamental principles and practices involved in Knitting machine operation for garment manufacturing with the role and responsibilities of the operator	APL/0314/OC1	30	90	0
Maintain tools and machines along with work area with safe working practices	APL/0314/OC2	30	140	0
Plan and prepare sewing of knitted fabric by setting up sewing machines	APL/0314/OC3	30	140	0
Execute the technique of stitching of knitted materials	APL/0314/OC4	30	140	0
Demonstrate the proficiency in constructed product with a focus on flawless quality	APL/0314/OC5	30	140	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	APL/0314/OC6	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0