



Model Curriculum

QP Name: Sports Bat and Racquet Craftsperson (Junior)

QP Code: SPF/Q8102

QP Version: 1.0

NSQF Level: 3

Model Curriculum Version: 1.0

Sports, Physical Education, Fitness and Leisure Sector Skill Council
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Training Parameters

Sector	Sports
Sub-Sector	Sports Manufacturing
Occupation	Sports Bat and Racquet Craftsperson (Junior)
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/9329.8102
Minimum Educational Qualification and Experience	10th grade pass OR 9th grade pass with 1 Year of relevant experience OR 8th grade pass with 2 Years of relevant experience OR 5th grade pass with 5 Years of relevant experience OR Previous relevant Qualification of NSQF Level 2, Sports Goods Manufacturing Helper with 3 years of relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years
Last Reviewed On	23/06/2023
Next Review Date	23/06/2026
NSQC Approval Date	23/06/2023
QP Version	1.0
Model Curriculum Creation Date	23/06/2023
Model Curriculum Valid Up to Date	23/06/2026
Model Curriculum Version	1.0
Minimum Duration of the Course	300 Hours
Maximum Duration of the Course	300 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner will be able to:

- Prepare materials for the production bats and racquet
- Craft cricket bats
- Craft table tennis racquets
- Assemble different components of bats and lawn tennis racquets
- Perform final quality and standards check of bats and racquets
- Work effectively with others

Compulsory Modules

The table lists the modules, their duration and mode of delivery.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
SPF/N8103: Prepare tools and materials to make bats and racquets NOS Version No. 1.0 NSQF Level 3	20:00	40:00	00:00	00:00	60:00
(Bridge Module) Module 1: Introduction to Sports Bat and Racquet Craftsperson (Junior) job role	05:00	10:00	00:00	00:00	15:00
Module 2: Plan materials and equipment to make bats and racquets	15:00	30:00	00:00	00:00	45:00
SPF/N8104: Craft bats and racquets NOS Version No. 1.0 NSQF Level 3	15:00	45:00	30:00	00:00	90:00
Module 3: Craft parts of bats and racquets	15:00	45:00	30:00	00:00	90:00
SPF/N8105: Perform final assembly to produce bats and racquets NOS Version No. 1.0 NSQF Level 3	15:00	45:00	30:00	00:00	90:00

Module 4: Assemble different parts of bats and racquets	15:00	45:00	30:00	00:00	90:00
SPF/N1169: Improve workplace resource usage NOS Version No. 1.0 NSQF Level 3	10:00	20:00	00:00	00:00	30:00
Module 5: Build an environmental friendly workplace	10:00	20:00	00:00	00:00	30:00
DGT/VSQ/N0101- Employability skills (30 Hours) NOS Version No. 1.0 NSQF Level 2	15:00	15:00	00:00	00:00	30:00
Module 6: Employability skills	15:00	15:00	00:00	00:00	30:00
Total Duration	75:00	165:00	60:00	00:00	300:00

Module Details

Module 1: Introduction to the job role of Sports Bat and Racquet Craftsperson (Junior)

Bridge Module

Mapped to SPF/N8103, v1.0

Terminal Outcomes:

- Describe the role and career opportunities of a Sports Bat and Racquet Craftsperson (Junior)

Duration: 05:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> State the role and responsibilities of a Sports Bat and Racquet Craftsperson (Junior) Discuss the entrepreneurship opportunities in sports good manufacturing sector Discuss the skills required to be a successful Sports Bat and Racquet Craftsperson (Junior) 	<ul style="list-style-type: none"> Create a career progression chart of a Sports Bat and Racquet Craftsperson (Junior) in manufacturing industry List the career opportunities of a Sports Bat and Racquet Craftsperson (Junior)
Classroom Aids:	
Laptop, whiteboard, marker, projector, chart paper, clipboards	
Tools, Equipment, and Other Requirements	
NA	

Module 2: Plan materials and equipment for the production of sports ball

Mapped to SPF/N8103, v1.0

Terminal Outcomes:

- Select equipment for the production
- Prepare materials for the production
- Maintain hygiene and sanitation at workplace

Duration: 15:00	Duration: 30:00
<p>Theory – Key Learning Outcomes</p> <ul style="list-style-type: none"> • Explain the difference between raw materials and equipment required for the production of sport bat and racquet • Discuss the types of equipment used for the production of sports bat and racquet • Discuss the significance of job card in a manufacturing factory • Explain the materials used in the production of sports bat and racquet • Explain process of wood treatment • Explain the process of grading wood • Explain the types of aluminium and their suitability to craft racquets • Explain the ways to ensure hygiene and sanitation at workplace 	<p>Practical – Key Learning Outcomes</p> <ul style="list-style-type: none"> • List the equipment required for the production of sports bat and racquet • Calculate the total amount of materials required for the target production • Select the wood and other materials that can be used in making of cricket bats, baseball bats, table tennis racquets, etc. • Demonstrate ways to maintain hygiene and sanitation at workplace
<p>Classroom Aids:</p> <p>Laptop, whiteboard, marker, projector, chart paper, clipboards, height & weight chart</p>	
<p>Too, Equipment and Other Requirements</p> <p>Raw materials (English/Kashmir/White willow, plywood, aluminium frames, rubber grips, nylon strings) incubator, draw knife/pod haver, gloves, earplugs, goggles, nose mask, safety shoes, apron, safety cap/helmet, steel rule, measurement tape, inside and outside calliper, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler slats adhesive, sand paper, nails, wood pegs, stringing machine, metal cutting machines, moulding machines, equipment, packaging equipment</p>	

Module 3: Craft parts of bats and racquets

Mapped to SPF/N8104, v1.0

Terminal Outcomes:

- Craft cricket bats
- Craft table tennis racquets
- Craft badminton and lawn tennis racquets

Duration: 15:00	Duration: 45:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the types of willow suitable for crafting bats • Select appropriate laminated wood to craft table tennis racquet • Explain the types of wood, aluminium composite used for crafting racquets • Discuss the characteristics of wood, moisture, density, etc. • Explain the operating procedures to carry out colouring, cleaning, lamping, thread trimming, and packaging • Recall the method of interpreting product specifications • Discuss the equipment needed for the moulding, shaping, sanding, cutting activity • Explain the methods of calculating the number of components required for target production • Discuss common quality imperfections associated with the materials • Highlight implications of using defective tools and machines on the materials • Describe the stages of production of bats and racquets • Discuss the importance of agreeing work targets with the supervisor • Identify the properties of plywood cypress, wood balsa, soft ash, walnut, etc used to craft table tennis racquets • Discuss the types of the rubber and sponge used as the surface of the racquet is ITTF approved (International Table Tennis Federation) • Discuss the implications of using inward and outward pointing pimped rubber on the surface of the racquet • Discuss how the anodizing treatment changes the surface of the aluminium, and gives the rackets a shiny finish • Recall the importance of grouping components before sending it to the next stage of production • Explain the importance of documentation • Explain the importance of reporting 	<ul style="list-style-type: none"> • Demonstrate way to identify the properties of Kashmir willow, English willow, and White willow • Extract moisture from the willow before using incubator or natural sun drying process • Measure the dryness of the wood using appropriate tool • Demonstrate the process of cutting or matching the willow to create clefts • Demonstrate the use of waxing technique to smoothen the edges • Demonstrate how to grade clefts as per four levels based on straightness, width, blemishes • Operate pressing machine to compress the willow to a solid compact state • Craft the willow or the blade to create space for the handle • Assemble handle with the blades using wood adhesive • Demonstrate the use of drawknife to shape the shoulders of the blades to the cricket bat • Demonstrate the ways to round off the tow and fill unnecessary pieces on the bat • Demonstrate sanding process to smoothen the surface of the bat • Operate foot treadle to bind the handle of the bats with twine • Select the types of laminated woods to be used to craft table tennis racquet • Demonstrate how to utilise rubber pieces efficiently to get maximum cut pieces with minimum wastage • Check the stretchability and tightness of the rubber as per the ITTF standards • Prepare tennis racquet frame by assembling composite materials as 'flat sandwich' (graphite, fiberglass, boron, Kevlar, etc.) • Demonstrate the use of multiple spindles to hold drill bits to create multiple string holes • Temper the frame using heat and rapid cooling process • Demonstrate how to identify any imperfections in the material when assembling

- Recall the method of safely setting up and closing down cutting and other equipment in the workstation

Classroom Aids:

Laptop, whiteboard, marker, projector, chart paper, clipboards

Tools, Equipment and Other Requirements

Raw materials (English/Kashmir/White willow, plywood, aluminium frames, rubber grips, nylon strings) incubator, draw knife/pod haver, gloves, earplugs, goggles, nose mask, safety shoes, apron, safety cap/helmet, steel rule, measurement tape, inside and outside calliper, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler slats adhesive, sand paper, nails, wood pegs, stringing machine, metal cutting machines, moulding machines, equipment, packaging equipment

Module 4: Assemble different parts of bats and racquets

Mapped to SPF/N8105, v1.0

Terminal Outcomes:

- Assemble different components of bats
- String and apply finishing touch to racquets
- Perform quality and standards check of bats and racquets
- Work effectively with others

Duration: 15:00	Duration: 45:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the types of tools and equipment should be used for finishing • Discuss the types of raw material should be used require for finishing • Discuss the International standards of equipment applicable for manufacturing a cricket bat, table tennis racquets, tennis racquets. • the process for packaging • Discuss the types of tools and equipment and other materials used for packaging. • Discuss the process of packaging in standard manner to prepare to send national and international market • Recall the potential faults in the various processes and methods to avoid them • Discuss the process for obtaining replacements for worn faulty or defective tools • appearance of the final product • Discuss the common faults in tools and equipment and implications of working with faulty equipment • Explain the process of polishing, painting, shining different materials • Explain an appropriate response after assessing an emergency • Discuss the importance of gender and its related concepts such as gender roles, gender equality, gender power relations etc. • Discuss POSH (Prevention of Sexual Harassment) Act at workplace 	<ul style="list-style-type: none"> • Demonstrate how to rasp the handles using appropriate tools • Demonstrate how to bind the handle with traditional linen thread which is applied on a custom-made binding lathe • Operate foot treadle to bind the handle • Demonstrate the ways to polish the cricket bat once the bindings dry • Use compression machine to ensure rubber, foam and plywood stuck together on a table tennis racquet • Use stringing machine to force the strings through the holes using threader • Stress tests the racquets to determine proper stiffness and hardness • Inspect weight of racquets, usually before and after stringing, to make sure they meet specifications • Check the balance of the racquets to ensure it is not too heavy at the head or at the handle • Wound the grip smoothly ensuring no nicks or scratches • Use stringing machine to adjust the tension of the strings • Perform visual inspection to identify the faults, if any • Transfer finished racquets to lab tests to ensure the rackets are within the given constraints • Demonstrate ways to identify if the product conforms to shape and size requirements • Identify, mark and place rejects in the designated location • Use tools and equipment correctly, efficiently and safely • Complete and store accurate records and documentation • Attach brand labels, barcodes/price tags on the article • Clean the final article to remove all residue, dirt, adhesive or any other contamination by hand/ machine

	<ul style="list-style-type: none"> • Wrap the article in paper and prepare for packing in boxes
Classroom Aids:	
Laptop, whiteboard, marker, projector, chart paper, clipboards	
Tools, Equipment and Other Requirements	
<p>Raw materials (English/Kashmir/White willow, plywood, aluminium frames, rubber grips, nylon strings) incubator, draw knife/pod haver, gloves, earplugs, goggles, nose mask, safety shoes, apron, safety cap/helmet, steel rule, measurement tape, inside and outside calliper, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler slats adhesive, sand paper, nails, wood pegs, stringing machine, metal cutting machines, moulding machines, equipment, packaging equipment</p>	

Module 5: Build an environmental friendly workplace

Mapped to SPF/N1169, v1.0

Terminal Outcomes:

- Identify effective waste management techniques in the workplace.
- Ways to make the workplace environmentally sustainable.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Identify the environment-friendly materials available to replace conventional materials. • Explain ways of disposing non-recyclable waste appropriately. • Discuss common sources of pollution and ways to minimize them. 	<ul style="list-style-type: none"> • Prepare statutory documents relevant to safety and hygiene. • Exhibit the methods of disposing non-recyclable waste. • Report malfunctioning. (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment.
Classroom Aids:	
Laptop, whiteboard, marker, projector, chart paper, clipboards	
Tools, Equipment and Other Requirements	
Gloves, safety goggles, ladder	

Module 6: Employability Skills

Mapped to DGT/VSQ/N0101, v1.0

Terminal Outcomes:

- Understand Employability skills along with communication skills and constitutional values
- Able to set a goal and create a career plan, along with knowledge financial and legal knowledge

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the Employability Skills required for jobs in various industries. • 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 • Describe the role of digital technology in today's life • Explain entrepreneurship and opportunities available • Identify different types of customers and their needs • Explain skills required to become a 21st century professional • Teach to read and write basic English • Explain effective communication skills • Teach basic financial and legal knowledge 	<ul style="list-style-type: none"> • Create a career plan • Implement Self-awareness, time management, critical thinking, problem solving • Create sample word documents, excel sheets and presentations using basic features, utilize virtual collaboration tools to work effectively wherever necessary • Implement communication skills while handling different customers • Use appropriate basic English sentences/phrases while speaking. Differentiate between types of customers. • Create a biodata. • Use various sources to search and apply for jobs.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Duster	
Tools, Equipment and Other Requirements	
Computer (PC) with latest configurations, Computer Tables, Computer Chairs, UPS, Scanner cum Printer	

On-the-Job Training

Mapped to Sports Bat and Racquet Craftsperson (Junior)

Mandatory Duration: 60:00	Recommended Duration: 00:00
Location: On-Site	
Terminal Outcomes	
<ul style="list-style-type: none">• Prepare materials for the production bats and racquet• Craft cricket bats• Craft table tennis racquets• Assemble different components of bats and lawn tennis racquets• Perform final quality and standards check of bats and racquets	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
12th Class	Sports Bat and Racquet Craftsperson (Junior)	Minimum of 1 year	Must have worked as a Sports Bat and Racquet Craftsperson (Junior) in manufacturing unit	Minimum of 1 year	Must have worked as a Sports Bat and Racquet Craftsperson (Junior) in manufacturing unit	All empanelled Assessors would have to undergo "Train the Trainer" Program conducted by SPEFL SC for each job role time to time

Trainer Certification	
Domain Certification	Platform Certification
Certified ToT for job role "Sports Bat and Racquet Craftsperson (Junior)" mapped to QP "SPF/Q8102, v1.0" Minimum accepted score is 80%	Recommended that the trainer is certified for the Job-Role "Trainer" mapped to the QP: Master Trainer (VET and skills) MEP/Q2601, v2.0" Minimum accepted score is 80%

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
12th Class	Sports Bat and Racquet Craftsperson (Junior)	Minimum of 3 year	Must have worked as a Sports Bat and Racquet Craftsperson (Junior) in manufacturing unit	Minimum of 1 year	Must have worked as a Sports Bat and Racquet Craftsperson (Junior) in manufacturing unit	All empanelled Assessors would have to undergo "Train the Assessor" Program conducted by SPEFL SC for each job role time to time

Assessor Certification	
Domain Certification	Platform Certification
Certified ToA for job role "Sports Bat and Racquet Craftsperson (Junior)" mapped to QP "SPF/Q8102, v1.0" Minimum accepted score is 80%	Recommended that the assessor is certified for the Job-Role "Assessor" mapped to the QP: Assessor (VET and skills) MEP/Q2701, v2.0" Minimum accepted score is 80%

Assessment Strategy

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the SPEFL - Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training centre as per assessment criteria below.
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training centre based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score a minimum of 50% of aggregate marks to successfully clear the assessment.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Recommended Pass % aggregate for QP: 50

Each NOS in the Qualification Pack (QP) will be assigned a relative weightage for assessment based on the criticality of the NOS. Therein each Performance Criteria in the NOS will be assigned marks for or practical based on relative importance, criticality of function and training infrastructure.

The following tools are proposed to be used for final assessment:

1. **Practical Assessment:** This will comprise of a creation of mock environment in the skill lab which is equipped with all equipment's required for the qualification pack. Candidate's soft skills, communication, aptitude, safety consciousness, quality consciousness etc. will be ascertained by observation and will be marked in observation checklist. The product will be measured against the specified dimensions and standards to gauge the level of his skill achievements.
2. **Viva/Structured Interview:** This tool will be used to assess the conceptual understanding and the behavioural aspects as regards the job role and the specific task at hand. It will also include questions on safety, quality, environment, and equipment, etc.
3. **Written Test:** Under this test few key items which cannot be assessed practically will be assessed. The written assessment will comprise of:
 - i. True / False Statements
 - ii Multiple Choice Questions
 - iii Matching Type Questions.
 - iv Fill in the blanks

Accreditation of Assessing Body:

The SPEFL SC's Accreditation process is divided into two steps:

1. **Pre-accreditation process:**

- Apply for Accreditation: Application form with desired documents in prescribed format to be sent.
- Document Compliance: to be done for ensuring the compliance and adherence of applied assessing body according to criteria laid down by SPEFL SC.
- Presentation on Quality Assurance: to be given by Assessing body highlighting the quality assurance process laid down by Assessing body at the process points.
- Once the assessing body clears the due diligence process, the accreditation is given along with terms and conditions.

2. **Post-accreditation process:** Post accreditation, the accredited assessing bodies needs to fulfil following minimum eligibility criteria or requisites for implementation:

- All Empanelled Assessors would have to undergo **“Train the Assessor”** Program conducted by SPEFL SC for each job role time to time.
- Accredited Assessing Body would have to abide with requisite timelines, policies and regulations declared by SPEFL sector skill council.
- Accredited Assessing Body with times would have to contribute to expansion of the questionnaire.

References

Glossary

Term	Description
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on-site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module . A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards