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This NS apprenticeship certificate of qualification pathway consists of three sections:

1. **Compulsory Units** _____ **123 credits required**

2. **Choose one of three compulsory streams:**

Wood Units	110 credits required
FRP/Composite Units	103 credits required
Metal Units	125 credits required

3. **Elective Units** _____ **50 credits required**

Section 1. Compulsory Units:

Unit No.	Description	Credit
497NS - 02	Protect health and safety in the workplace	1
4249NS - 02	Demonstrate care and timeliness as an employee	3
18158NS - 01	Select, use and care of hand tools used in boat building	3
18159NS - 01	Select, use and care of portable power tools used in boat building	3
18160NS - 01	Operate a range of stationary power tools used in boat building	4
9913NS - 02	Demonstrate knowledge of the Nova Scotia boatbuilding Industry	5
9917NS - 02	Demonstrate knowledge of boat building methods	4
2399NS - 01	Dismantle, inspect, assemble and test components - supervised	10
9915/9916NS - 02	Identify and explain causes of material deterioration in the marine environment and recommend preventative measures	6
18161NS - 01	Perform measurements and calculations used in boat building	5
18166NS - 01	Participate in a team project in the boating industry	4
9922NS - 01	Take templates and patterns from existing boats	4
9923NS - 01	Install internal and external boat hardware fittings	4
9939/12942NS - 01	Build boat frameworks / Build boat frameworks under supervision	25
18162NS - 01	Calculate quantities and costs for boatbuilding projects	4
18164NS - 01	Demonstrate knowledge of insulation and install insulation in boats	2
18165NS - 02	Demonstrate knowledge of computer technology used in the boating industry	6
9933NS - 01	Install exterior boat joinery	10
18163NS - 01	Demonstrate knowledge of boatbuilding construction drawings and produce related freehand sketches	2
18170NS - 01	Contribute to a team project in the boating industry	3
9934NS - 01	Construct interior support structures for boats	15

Total 123

Section 2. Plus one (1) complete stream of the following three (3) (a. Wood, b. FRP/Composite, c. Metal):

a. Wood:

Unit No.	Description	Credit
3152NS - 01	Prepare wooden & substrate surfaces for finishing, including wood filling open grains	3
3154NS - 01	Apply preparation coatings to surfaces	4
*3160NS - 01	Produce a laminated polyester resin item to a product specification for composites	5
*3161NS - 01	Produce an epoxy resin item to a product specification for composites	5
9936NS - 01	Construct exterior boat joinery in wood	20
***11787NS - 01	Prepare wooden substrates for marine surface coatings	5
9930NS - 01	Plank a boat framework	23
**9940NS - 01	Sheathe a boat framework using wood and fibre-reinforced composites (FRC)	35
18168/143NS - 01	Demonstrate knowledge of wood and adhesives used in boatbuilding / Fillet wood for air or kiln drying	6
18169NS - 01	Laminate and join wood materials used in boatbuilding	4

Total 110

OR:

b. FRP/Composite:

Unit No.	Description	Credit
*3160NS - 01	Produce a laminated polyester resin item to a product specification for composites	5
*3161NS - 01	Produce an epoxy resin item to a product specification for composites	5
3162NS - 01	Produce a Vinylester resin item to a product specification for composites	5
3168NS - 01	Deposit a gel coat by hand for composites	4
3170NS - 01	Produce a laminate by vacuum bagging for composites	2
3171NS - 01	Produce a cored laminate for composites	3
3185/3186NS - 01	De-mould laminated items for composites / Finish product to specification for composites	11
3169NS - 01	Deposit a gel coat by spray methods for composites	6
3181NS - 01	Produce a plug or pattern for composites	12
3183NS - 01	Prepare pre-form materials for lamination for composites	4
3193NS - 01	Apply quantity surveying to composite production	2
9941NS - 01	Carry out the repair, restoration & structural alteration of composite boats	20
3192NS - 01	Provide for and attach fixings and fastenings in composites	4
9942NS - 01	Construct internal & external boat joinery in fibre-reinforced composites (FRC)	15
***11788NS - 01	Prepare fibre-reinforced composite substrates for marine surface coatings	5

Total 103

OR:

c. Metal:

Unit No.	Description	Credit
2415NS - 01	Form and shape fabrication materials – supervised	10
9944NS - 01	Identify the characteristics of aluminum alloys relevant to boat building	2
2416NS - 01	Assemble and mechanically join plate & sheet - supervised	10
2418NS - 01	Lay out and mark off the regular fabrication shapes – supervised	15
2421NS - 01	Mechanically cut fabrication materials using powered machinery - supervised	10
2675NS - 01	Weld aluminum with the gas metal arc welding process in the down-hand position	6
2676NS - 01	Weld to a general purpose quality with the gas tungsten arc process	6
2683NS - 01	Cut metals using manual thermal processes	4
2422NS - 01	Lay out and mark off complex fabrication shapes	15
2423NS - 01	Form and shape fabrication materials	15
2425NS - 01	Mechanically cut sheet, plate, tube, pipe & structural sections	10
9946NS - 01	Assemble multiple and complex metal boat components for joining	10
***11790NS - 01	Prepare aluminum substrates for marine surface coating	5
9949NS - 01	Identify the characteristics of steels relevant to boatbuilding	2
***11789NS - 01	Prepare steel substrates for marine surface coating	5

Total 125

Section 3. Plus 50 credits from any of the following electives:

FRP/Composite

Unit No.	Description	Credit
3166NS - 01	Produce an item using resin pre-impregnated reinforcement for composites	5
3167NS - 01	Deposit composite matrix with a depositor or chopper gun	6
3179NS - 01	Produce a laminate using a pre-wet machine for composites	2
**9940NS - 01	Sheathe a boat framework using wood and fibre-reinforced composites (FRC)	35

Welding

Unit No.	Description	Credit
2686NS - 01	Weld aluminum with the gas metal arc welding process in all positions	10
2688NS - 01	Weld stainless steel sheet and tube with the gas tungsten arc welding process	10
2671NS - 01	Weld steel structures with the manual metal arc welding process in down-hand positions	6
2684NS - 01	Weld steel structures with the gas metal arc welding processes in all positions	10
2685NS - 01	Weld steel structures with the manual metal arc welding process in all positions	10
2687NS - 01	Weld stainless steel sheet and plate with the gas metal arc welding processes in all positions	10

Mechanical

Unit No.	Description	Credit
11777NS - 01	Install production boat engine packages	10
241NS - 01	Describe the operation of a diesel fuel system and perform minor servicing tasks	3
15404NS - 01	Demonstrate knowledge of diesel engine air intake and exhaust systems, and inspect and test them	6
9938NS - 01	Install pipe work in boats	12
9937NS - 01	Install exterior boat systems	10

Electrical

Unit No.	Description	Credit
401NS - 01	NSBA marine electrical	25
5433NS - 01	Describe the application of electricity and electronics for marine use	8

Drawing / Lofting

Unit No.	Description	Credit
10836NS - 01	Produce scale drawings of boat surfaces from corrected offsets	6
10837/10838/ 10842NS - 01	Prepare a lofting floor for boatbuilding / Draw full-sized hulls from corrected offsets under supervision / Produce fair lines for boatbuilding	18

Filling and Fairing

Unit No.	Description	Credit
9950NS - 01	Fill and fair boat surfaces	6

Painting

Unit No.	Description	Credit
97/100/5712NS - 01	Apply surface coatings by conventional spray techniques / Apply liquid coatings by airless spray techniques / Use and maintain spray guns and rectify spray gun defects in the motor body or related industries	15
1071/1073NS - 01	Describe, select, use and maintain paint rollers / Describe, select, use and maintain paint brushes	4
11791NS - 01	Apply build coats and finish coats for marine paint systems	20
11786NS - 01	Anti-foul a boat	2

Wood

Unit No.	Description	Credit
9931NS - 01	Overlay boat deck with teak	15

Spars & Rigging

Unit No.	Description	Credit
18171NS - 01	Demonstrate knowledge of spars and rigging	5

* Only valid as either FRP/Composite or Wood Compulsory pathway

*** Part of a 4-part unit with separate assessments

** Only valid as either Wood Compulsory or Elective pathway