

FABRICATION

SECTION H: LINKAGES/TRANSITIONS

This section of the Guide has been designed to provide an overview of linkages and transitions of CTS courses with a number of organizations. The charts and information presented in this section will assist CTS students and teachers in understanding the potential application of CTS courses as students move into the workplace.

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LINKAGES/TRANSITIONS

There are many opportunities for students in Fabrication Studies to build linkages among CTS strands and across other subject areas, including core and complementary programs. In addition to making linkages across the curriculum, making connections between what students have already learned in other settings (e.g., home, community and workplace) can also be achieved through this strand.

LINKAGES

With Basic Competencies

The Fabrication Studies strand supports the development and integration of the basic competencies related to personal and resource management, problem solving, safe work practices and social interactions throughout the introductory, intermediate and advanced courses. It is important that students develop these competencies because success in the workplace often depends more on these skills than on many of the technical or academic skills they possess.

With Other CTS Strands

Fabrication Studies complements courses from a number of other strands, e.g., Agriculture, Communication Technology, Design Studies, Enterprise and Innovation, Construction Technologies, Forestry and Logistics.

Specific linkages that may be of interest to students in Fabrication Studies include:

Strand	Course	Linkage
Agriculture	Agrifoods 1 (AGR2050)	Construction of structures used in processing and storage of agriculture products, livestock and equipment.

Strand	Course	Linkage
Career Transitions	Project Courses	Provides opportunity and direction for students involved in projects beyond the expectations of a given Fabrication Studies course.
	Practicum Courses	Provides opportunity for students to work towards an externally developed and recognized credential related to the strand.
Construction Technologies	Climate Control Systems (CON2090)	Links with the sheet metal fabrication courses.
	Plumbing Systems (CON2080)	Links with Pipe Fitting.
Design Studies	Sketch, Draw & Model (DES1010)	Can be offered in conjunction with a student project and design course.
	Technical Drawing App. (DES2050)	Used in the context of house design and residential systems.
Energy and Mines	Refining Rocks & Minerals (ENM2070)	Provides a good background for metallurgy.
Enterprise and Innovation	Planning a Venture (ENT1020)	Used in conjunction with manufacturing and production courses.
Logistics	Purchasing 1 (LOG1040)	Used in conjunction with estimating and purchasing materials.

It is important to note that project, practicum and safety courses from the Career Transitions strand may be combined with courses from the Fabrication Studies strand to provide increased opportunity for students to develop expertise and refine their competencies in a particular area of study such as:

- acquiring safety skills and credentials
- completing a larger more complex product
- enhance specific welding sheet, metal and machining skills
- expanding a course topic or theme.

An example of a CTR Project course that has been developed as an extension to an existing course is shown in this section.

Linkages between the Fabrication Studies courses and other strands and across the curriculum have also been identified. Refer to “Fabrication Studies: Connections With Other CTS Strands” and “Fabrication Studies Connections Across the Curriculum.”

In addition, courses may also be aligned according to the course emphasis and themes that run between courses and strands as outlined in “Fabrication Studies: Junior High School Course Clusters.”

For a summary of courses that can be combined with the Fabrication Studies from other strands, refer to “Fabrication Studies: Extended Scope and Sequence.”

With Elementary Programs

The development of concepts related to Fabrication Studies can begin as early as ECS using hand tool activities and teaching strategies similar to those outlined in the “Integrated Practical Activities for Elementary Grades” (Alberta Education, 1980).

With Other Secondary Programs

To help make learning more authentic and significant, it is important to integrate the core and complementary areas with Fabrication Studies. By being aware of and supporting the content of other curricula promotes the transfer of knowledge and skills and reinforces core and complementary courses as outlined in the following chart.

Subject	Linkage
Language Arts	Technical report writing, task analysis, event scheduling and oral and multimedia presentations.
Mathematics	Measurement, calculation of area and volume, use of fractions, ratios, geometry and trigonometry.
Science	Material properties, structures, chemical safety, use of simple machines and electricity as well as related environmental concerns.
Social Studies	Economics, impact of technology on society, resource development and industrial relationships.
CALM	Career assessment and preparation.
Art	Metal sculpture and casting
Drama	Stage prop construction and set design.

With Practical Arts Courses

As of September 1997, courses in the Fabrication Studies strand replaces many of the existing junior and senior high practical arts programs. A detailed correlation of the Fabrication Studies strand courses to the practical arts courses can be found in this section (see “Fabrication Studies: Correlations to Junior/Senior High School Practical Arts Courses”).

TRANSITIONS

To the Community/Workplace

Competencies developed in Fabrication Studies provide students with many of the entry level skills required in the workplace (see “Fabrication Studies: Course Relationships to Specific Trades and Occupations”).

The National Occupational Classification (NOC) shown in chart form in this section, indicates occupations for which Fabrication Studies provides a foundation (see “Fabrication Studies: Related Occupations”). According to this chart, high school students could potentially move into 12 occupations requiring high school education and nine trades related to Fabrication Studies.

To Related Post-secondary Programs

The themes and courses offered in Fabrication Studies are consistent with many of the pre-employment and apprenticeship courses now being offered by post-secondary institutions.

A number of articulation agreements have been established with post-secondary institutions in Alberta. These agreements provide preferred entrance and/or advanced standing/credit for CTS students who have successfully completed designated courses. A current summary of articulation agreements in place that involve CTS courses is available through Alberta Learning’s web site at <<http://www.learning.gov.ab.ca>>. For further information regarding particular articulation agreements, contact the post-secondary institution and/or review their respective calendar.

CTS courses in Fabrication Studies may also link with one or more of Alberta’s Apprenticeship Training Programs; e.g., Welder, Machinist, Sheet Metal Worker. Students who are employed as an apprentice in one of these trade areas and have successfully completed designated CTS courses may also qualify, upon the recommendation of their employer, for a portion of the in-school training component. A summary of articulation agreements established for specific apprenticeship trades (including a correlation to CTS courses) is available through Alberta Learning’s web site. Further information regarding apprenticeship linkages can be obtained by contacting Alberta Advanced Education and Career Development, Apprenticeship and Industry Training Division.

An outline of post-secondary institutions in Alberta currently offering programs related to Fabrication Studies can be found in this section (see “Fabrication Studies: Summary of Related Post-secondary Programs”).

CREDENTIALLING

Students may earn partial or complete credentials recognized in the workplace and/or post-secondary institutions by demonstrating specified competencies within the CTS curriculum. The Fabrication Studies strand, in conjunction with courses from the Career Transitions strand, provide opportunities for students to develop competencies related to:

- Explosive Actuated Tools
- Construction Safety Training
- Emergency First Aid
- CPR Level C
- Workplace Hazardous Materials Information System
- Transportation of Dangerous Goods.

Further information regarding credentialling in Fabrication Studies is provided in this section (see “Credentialling Opportunities in Fabrication Studies”) and the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers*, Appendix 14.

LINKAGES – Fabrication Studies: Sample CTR Project Course (continued)

COURSE CTR3110: PROJECT 3A – OVERHEAD POSITION WELDING

Concept	Specific Outcomes	Notes
Project Definition	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify a project • prepare a project plan: <ul style="list-style-type: none"> – clarify the purposes of the project – define project deliverables – specify project timelines – explain terminology, tools and processes consistently throughout the project – define resource needs; e.g., materials, costs, staffing • identify and comply with all related health and safety standards • define assessment standards (indicators for success) • present project proposal and obtain necessary approvals. 	<p>Develop the skills necessary to weld lap joints on 3/8" (10 mm) mild steel in the overhead position using E41010, E48014 and E48018 filler material to trade standards.</p>
Project Management	<ul style="list-style-type: none"> • proceed with the project as outlined with the project plan • monitor project and make necessary adjustments to project plan. 	<p>Project monitoring should include regular progress checks and consultation with teacher and others.</p>
Project Presentation and Assessment	<ul style="list-style-type: none"> • present the project: <ul style="list-style-type: none"> – outcomes attained – relationship to goals set originally • evaluate the project: <ul style="list-style-type: none"> – processes and strategies used – recommendations for how the project could have been improved. 	<p>Project presentation could be in print, a display of the project or a description of the processes undertaken.</p> <p>Student assessment could be print, verbal and/or audio visual.</p>

LINKAGES – Fabrication Studies: Connections with Other CTS Strands

Fabrication Studies Courses	Other CTS Strands																				
	Agriculture	Career Transitions	Communication Technology	Community Health	Construction Technologies	Cosmetology Studies	Design Studies	Energy and Mines	Electro-Technologies	Enterprise and Innovation	Fashion Studies	Financial Management	Foods	Forestry	Information Processing	Legal Studies	Logistics	Management and Marketing	Mechanics	Tourism Studies	Wildlife
Theme: Materials and Structures																					
FAB1010: Fabrication Tools & Materials																					
FAB2010: Structural Engineering	■				■		■	■													
FAB2020: Print Reading					■		■	■													
FAB3010: Materials Testing					■		■	■												■	■
FAB3020: Metallurgy Fundamentals					■		■	■												■	■
Theme: Fabrication Processes																					
FAB1040: Oxyacetylene Welding	■																				
FAB1050: Basic Electric Welding																				■	■
FAB1110: Bar & Tubular Fabrication																				■	■
FAB1090: Sheet Fabrication 1 (Hand Processes)																				■	■
FAB1100: Fabrication Principles																				■	■
FAB2030: Oxyfuel Welding																				■	■
FAB2040: Thermal Cutting																				■	■
FAB2050: Arc Welding 1																				■	■
FAB2060: Arc Welding 2																				■	■
FAB2070: Gas Metal Arc Welding 1																				■	■
FAB2170: Pipe Fitting																				■	■
FAB2090: Sheet Fabrication 2 (Machine Processes)																				■	■
FAB2100: Sheet Fabrication 3 (Parallel Line)																				■	■
FAB2110: Forging Fundamentals																				■	■
FAB3030: Gas Tungsten Arc Welding																				■	■
FAB3040: Specialized Welding																				■	■
FAB3050: Arc Welding 3																				■	■
FAB3060: Arc Welding 4																				■	■
FAB3170: Gas Metal Arc Welding 2																				■	■
FAB3070: Pipe & Tubular Welding																				■	■
FAB3080: Automated Welding																				■	■
FAB3090: Sheet Fabrication 4 (Radial Line)																				■	■
FAB3110: Sheet Fabrication 5 (Duct Components)																				■	■
Theme: Production Systems and Processes																					
FAB1120: Foundry 1 (One-piece Pattern)																					
FAB1130: Principles of Machining																					
FAB1160: Production Systems																					
FAB2120: Foundry 2 (Split Pattern)																					
FAB2130: Precision Turning 1																				■	■
FAB2140: Precision Milling 1																				■	■
FAB2150: CNC Turning (Computer Numerical Control)																				■	■
FAB2160: Custom Fabrication																				■	■
FAB3120: Foundry 3 (Core Molding)																				■	■
FAB3130: Precision Turning 2																				■	■
FAB3140: Precision Milling 2																				■	■
FAB3150: CNC Milling (Computer Numerical Control)																				■	■
FAB3160: Prefabrication Principles																				■	■

Provides many direct links with competencies in this strand. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical situations.



Provides some links with competencies developed in this strand, usually through the application of related technologies and/or processes.



LINKAGES – Fabrication Studies: Connections Across the Curriculum

Fabrication Studies Courses	Across the Curriculum																		
	Junior High							Senior High											
	Language Arts	Social Studies	Mathematics	Science	Health & PLS	Physical Education	Fine Arts	English	Social Studies	Mathematics	Science (General)	Biology	Chemistry	Physics	CALM	Physical Education	Fine Arts	Social Sciences	Second Language
Theme: Materials and Structures																			
FAB1010: Fabrication Tools & Materials				■												■			
FAB2010: Structural Engineering				■												■			
FAB2020: Print Reading				■												■			
FAB3010: Materials Testing										■				■					
FAB3020: Metallurgy Fundamentals										■				■					
Theme: Fabrication Processes																			
FAB1040: Oxyacetylene Welding											■		■		■				
FAB1050: Basic Electric Welding											■		■		■				
FAB1110: Bar & Tubular Fabrication			■													■			
FAB1090: Sheet Fabrication 1 (Hand Processes)			■							■						■			
FAB1100: Fabrication Principles			■							■						■			
FAB2030: Oxyfuel Welding											■					■			
FAB2040: Thermal Cutting																■			
FAB2050: Arc Welding 1																■			
FAB2060: Arc Welding 2																■			
FAB2070: Gas Metal Arc Welding 1																■			
FAB2170: Pipe Fitting																■			
FAB2090: Sheet Fabrication 2 (Machine Processes)											■					■			
FAB2100: Sheet Fabrication 3 (Parallel Line)											■					■			
FAB2110: Forging Fundamentals																■			
FAB3030: Gas Tungsten Arc Welding																■			
FAB3040: Specialized Welding																■			
FAB3050: Arc Welding 3																■			
FAB3060: Arc Welding 4																■			
FAB3170: Gas Metal Arc Welding 2																■			
FAB3070: Pipe & Tubular Welding																■			
FAB3080: Automated Welding																■			
FAB3090: Sheet Fabrication 4 (Radial Line)																■			
FAB3110: Sheet Fabrication 5 (Duct Components)																■			
Theme: Production Systems and Processes																			
FAB1120: Foundry 1 (One-piece Pattern)				■												■			
FAB1130: Principles of Machining			■													■			
FAB1160: Production Systems																■			
FAB2120: Foundry 2 (Split Pattern)																■			
FAB2130: Precision Turning 1											■					■			
FAB2140: Precision Milling 1											■					■			
FAB2150: CNC Turning (Computer Numerical Control)											■					■			
FAB2160: Custom Fabrication											■					■			
FAB3120: Foundry 3 (Core Molding)																■			
FAB3130: Precision Turning 2											■					■			
FAB3140: Precision Milling 2											■					■			
FAB3150: CNC Milling (Computer Numerical Control)											■					■			
FAB3160: Prefabrication Principles																■			

Provides many direct links with course content. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical contexts.



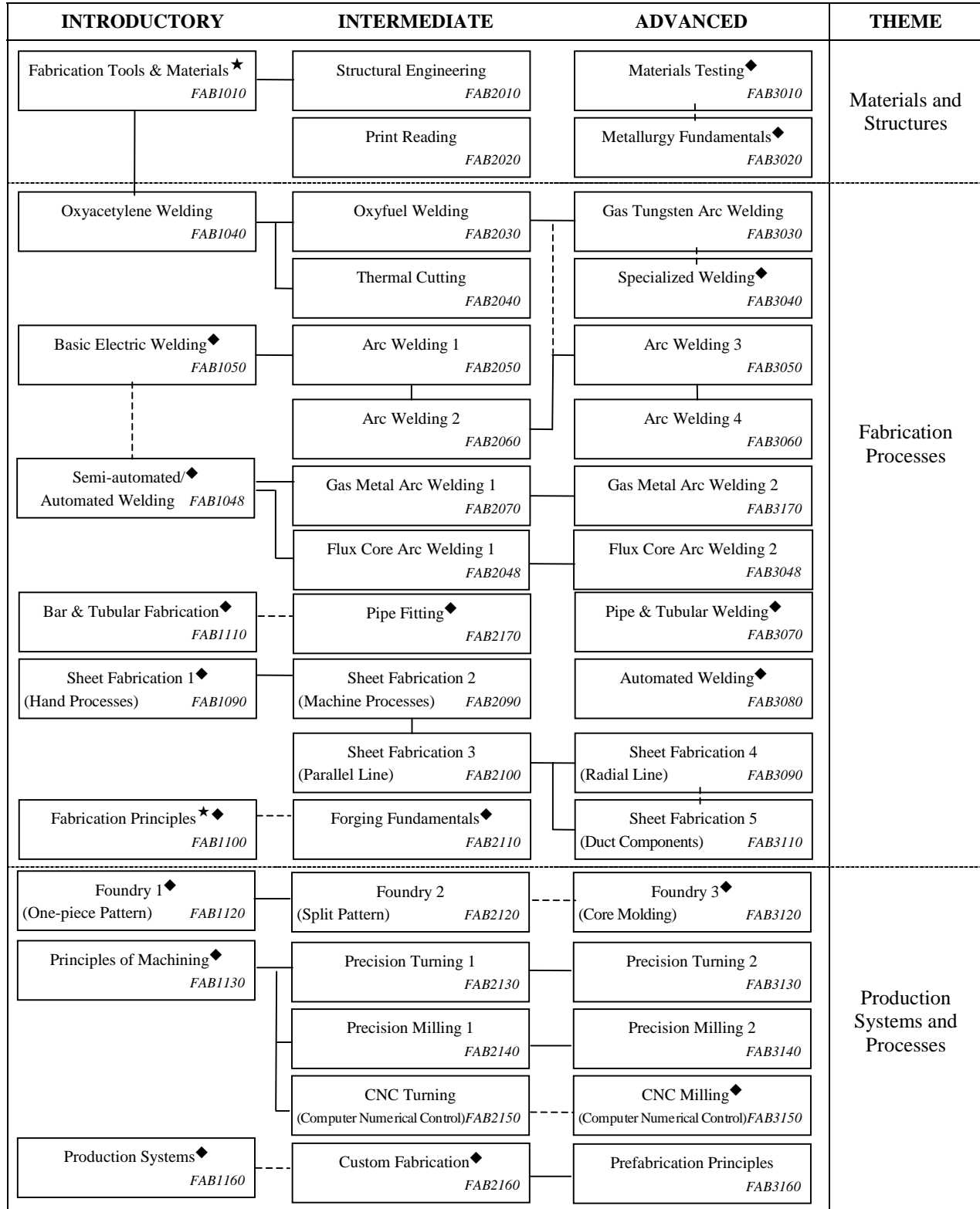
Provides some links with course content, usually through the application of related technologies and/or processes.



LINKAGES – Fabrication Studies: Junior High School Course Clusters

Course Emphasis	Fabrication Studies Courses	Construction Technologies Courses	Design Studies Courses	Energy & Mines Courses
Fabrication & Production Systems (3 courses)	Fabrication Tools & Materials (FAB1010)			
	Fabrication Principles (FAB1100)			
	Production Systems (FAB1160)			
Production & Processes (4 courses)	Fabrication Tools & Materials (FAB1010)			
	Foundry 1 (FAB1120)			
	Principles of Machining (FAB1130)			Fundamentals of Recycling (ENM1090)
Fabrication Processes (5 courses)	Fabrication Tools & Materials (FAB1010)		Sketch, Draw & Model (DES1010)	
	Fabrication Principles (FAB1100)			
	Basic Tools & Materials (CON1010)			
	Sheet Fabrication (FAB1090)			
Planning & Management (6 courses)	Fabrication Tools & Materials (FAB1010)	Project Management (CON1120)	Sketch, Draw & Model (DES1010)	
	Sheet Fabrication 1 (FAB1090)			
	Bar & Tubular Fabrication (FAB1110)			
	Principles of Machining (FAB1130)			

Fabrication Studies: Scope and Sequence



—— Prerequisite

----- Recommended sequence

★ Course provides a strong foundation for further learning in this strand.

◆ Refer to specific course for additional prerequisites.

LINKAGES – Fabrication Studies: Extended Scope and Sequence

THEME	INTRODUCTORY	INTERMEDIATE	ADVANCED
Materials and Structures	Refining Rocks & Minerals <i>ENM2070</i>	Technical Drawing App. <i>DES2050</i>	
Fabrication Processes	Electrical Fundamentals <i>MEC1090</i>		Practicum A (Explosive Actuated Tools) <i>CTR3040</i>
	Engine Fundamentals <i>MEC1040</i>	Framing Systems 1 <i>CON2040</i>	Generation /Transformation <i>ELT3040</i>
		Exterior Finishing <i>CON2060</i>	
		Robotics 2 <i>ELT2140</i>	
		Plumbing Systems <i>CON2080</i>	
		Climate Control Systems <i>CON2090</i>	
	Metal Forming & Finishing <i>MEC1170</i>	Agri-structures <i>CON2100</i>	
Production Systems and Processes	Project Management <i>CON1120</i>	Multiple Materials <i>CON2120</i>	Tool Maintenance <i>CON3120</i>
	Mold Making & Casting <i>CON1180</i>		
	CAD Fundamentals <i>DES1050</i>	CAD Applications <i>DES2030</i>	Info Management Tools <i>INF3080</i>
	Fundamentals of Recycling <i>ENM1090</i>		Managing the Venture <i>EAI3010</i>
		Manufacturing Systems <i>CON2190</i>	Production Planning <i>CON3190</i>
		Product Development <i>CON2200</i>	Production Management <i>CON3200</i>

TRANSITIONS - Fabrication Studies: Course Relationships to Specific Trades and Occupations

Introductory, Intermediate and Advanced Courses	FAB1010: Fabrication Tools & Materials	FAB1040: Oxyacetylene Welding	FAB1050: Basic Electric Welding	FAB1110: Bar & Tubular Fabrication	FAB1090: Sheet Fabrication 1	FAB1110: Fabrication Principles	FAB1120: Foundry 1	FAB1130: Principles of Machining	FAB1160: Production Systems	FAB2010: Structural Engineering	FAB2020: Print Reading	FAB2030: Oxyfuel Welding	FAB2040: Thermal Cutting	FAB2050: Arc Welding 1	FAB2060: Arc Welding 2	FAB2070: Gas Metal Arc Welding 1	FAB2170: Pipe Fitting	FAB2090: Sheet Fabrication 2	FAB2100: Sheet Fabrication 3	FAB2110: Forging Fundamentals	FAB2120: Foundry 2	FAB2130: Precision Turning 1	FAB2140: Precision Milling 1	FAB2150: CNC Turning	FAB2160: Custom Fabrication	FAB3010: Materials Testing	FAB3020: Metallurgy Fundamentals	FAB3030: Gas Tungsten Arc Welding	FAB3040: Specialized Welding	FAB3050: Arc Welding 3	FAB3060: Arc Welding 4	FAB3170: Gas Metal Arc Welding 2	FAB3070: Pipe & Tubular Welding	FAB3080: Automated Welding	FAB3090: Sheet Fabrication 4	FAB3110: Sheet Fabrication 5	FAB3120: Foundry 3	FAB3130: Precision Turning 2	FAB3140: Precision Milling 2	FAB3150: CNC Milling	FAB3160: Prefabrication Principles							
	TRADES AND OCCUPATIONS																																															
Agricultural Mechanic	X	X	X			X		X				X	X	X	X	X	X					X	X				X		X											X	X							
Autobody Technician	X	X	X		X	X						X	X				X	X																														
Blacksmith and Die Setters	X			X		X	X		X		X	X	X								X					X																						
Boilermaker	X					X					X	X	X	X	X											X																						
Farrier	X					X															X					X																						
Forging Machine Operators	X					X					X																	X																				
Ind. Eng. and Manufacturing Tech.	X					X		X	X		X													X	X	X	X																	X				
Iron Worker	X	X	X	X		X				X	X										X																										X	
Machinist	X					X	X	X	X		X											X	X	X	X	X	X	X													X	X	X	X				
Millwright	X	X	X	X	X	X		X			X	X	X	X	X	X	X				X	X	X	X				X												X								
Automotive Service Technician	X	X				X		X																X	X			X																				
Materials Engineering Technologists	X	X	X	X	X	X	X	X	X	X	X										X	X					X	X																				
Metalworking Machine Operators	X					X			X		X																	X																				
Sheet Metal Worker	X	X	X		X	X			X	X	X	X	X						X	X					X		X		X																		X	
Sprinkler Systems Installer	X			X		X					X															X																						X
Steamfitter - Pipe Fitter	X	X	X	X		X					X	X		X											X		X																				X	
Structural Steel and Plate Fitter	X	X	X			X				X	X		X	X	X										X		X		X																			
Tool and Die Maker	X					X	X	X	X		X										X	X	X	X	X	X	X	X													X	X	X	X				
Welder	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X								X		
Plumbing	X			X		X					X	X													X		X																					
Gas Fitting	X	X	X			X					X	X		X	X										X		X																					
Refridgeration/Air Conditioning	X				X	X					X															X																						

TRANSITIONS – *Fabrication Studies: Related Occupations*

Information for this chart was obtained from the National Occupational Classification (NOC) descriptions.

Educational Requirements:

D: High School Education

B: College or Vocational Education

C: Apprenticeship

A: University

Occupational Profile	NOC#	D	C	B	A
Blacksmiths and Die Setters	7266	✓			
Boiler Maker	7262	✓			
Contractors and Supervisors, Metal Forming, Shaping and Erecting Occupations	7211	✓			
Forging Machine Operator	9512	✓			
Industrial Engineering and Manufacturing Technologists and Technicians	2233			✓	✓
Ironworker	7264		✓		
Labourer in Metal Fabrication	9612	✓			
Labourer in Rubber and Plastic Products Manufacturing	9615	✓			
Materials Engineering Technologist	2231/2233			✓	✓
Metalworking Machine Operator	9514	✓			
Other Metal Products Machine Operator	9516	✓			
Other Trades Helpers and Labourer	7612	✓			
Plastics Processing Machine Operator	9422	✓			
Plastic Products Assemblers, Finishers and Inspectors	9214	✓			
Rubber Processing Machine Operators and Related Workers	9423	✓			
Sheet Metal Worker	7261		✓		
Sprinkler Systems Installer	7252		✓		
Steamfitter–Pipefitter	7252		✓		
Structural Metal and Platework Fabricators and Fitters	7263		✓		
Supervisors, Plastic and Rubber Products Manufacturing	9214	✓			
Tool and Die Maker	7232		✓		
Welder	7265		✓		
Welding, Brazing and Soldering Machine Operators	9515	✓			

TRANSITIONS – Fabrication Studies: Summary of Related Post-secondary Programs

	PUBLIC COLLEGES										APPRENTICESHIP TRADE	PRIVATE COLLEGES					TECH. INST.	Banff	UNIVERSITIES			VOCATIONAL COLLEGES						
	Alberta College of Art & Design	Fairview College	Grande Prairie Regional College	Grant MacEwan Community College	Keyano College	Lakeland College	Lethbridge Community College	Medicine Hat College	Mount Royal College	Olds College		Red Deer College	Augustana University College	Canadian Union College	Concordia College	King's University College, The	North American Baptist College	Northern Alberta Institute of Technology	Southern Alberta Institute of Technology	Banff Centre	University of Alberta	University of Calgary	University of Lethbridge	AVC - Calgary	AVC - Edmonton	AVC - Lac La Biche	AVC - Lesser Slave Lake	
Aeronautical/Mechanical Engineering Technology																	CD (3y)											
Agricultural Mechanic						C(16 w)				D		2y																
Aircraft Maintenance Engineering/Engineers Technology																	V	VD										
Arts (including Ceramics, Drawing, Glass, Jewellery, Metals)	D(4 y)		CD 2t	D	CD 2t			D2t	2t		D2t	B	V					V	BM	BM	BM							
Auto Body Technician												3y																
Automotive Service Technician (including Automotives/Automotive Service Technology, Gasoline Engine Performance Analysis, and Pre-employment)		C			8w	C(12 w)	D	8w			D	4y					C	VD						VC	C(16 w)			
Boilermaker												3y																
Civil Engineering Technologies (including Building Construction, and Surveying and Mapping)							D										D	D						C			C	
Engineering (including degree programs in Agricultural, Chemical, Civil, Computer, Electrical, Engineering Physics, Mechanical, Metallurgical, Mining, Petroleum, and Survey)			1t		1t			1t	1t 2t		1t		2t	1t						BMP hD	DBM PhD	1t						
Farrier Science		CD								C																		
Gas Fitter												3y																
Heavy Equipment/Industrial Operations (including Crane and Hoisting Equipment Operators, Crawler Tractor, Front End Loader, Hydraulic Backhoe Excavating, Motor Grader/Scraper)					C(5w)							1y2 y3y																

CREDENTIALLING – Fabrication Studies: Credentialling Opportunities★

The following credentialling opportunities link with courses in Fabrication Studies and other strands.

Certificate	Agency	Linking Courses	Instructor Qualifications	Comments
Explosive Actuated Tools	Technical Institute or College (post-secondary)	Concrete Work (CON3010)	EAT certificate	Required by OH&S for all operators to be certified. Formal credentialling to be arranged through local college or technical institutes.
Construction Safety training System	Alberta Construction Safety Association	Site Management (CON3110)	Alberta Construction Safety Association Trainer	Can be offered through a CD ROM Interactive Video Computer System.
Emergency First Aid	St John Ambulance Canadian Red Cross	Personal Safety Management (CTR1210)	Certified First Aid/CPR Instructor	3-year nationally recognized certificate.
CPR, Level C	St John Ambulance Canadian Red Cross	Practicum courses (CTR Practicum Courses A–E), CTR3040–3080	CPR Instructors	Nationally recognized certification “Basic Rescuer” includes airway management and CPR for adults, children, infants and 2-rescuer adult CPR (12 hours)
Workplace Hazardous Materials Information Systems (WHMIS)	Occupational Health and Safety	Personal Safety Management (CTR1210)	WHMIS Instructor	Addresses skills required to work safely with hazardous materials
Transportation of Dangerous Goods (TDG)	Alberta Transportation and Utilities	Workplace Safety Practices (CTR2210)	TDG Instructor	Addresses skills required by individuals involved with the transportation and handling of dangerous goods

★ Further information regarding these and other credentialling opportunities available to CTS students is available through Alberta Learning’s web site at <<http://www.learning.gov.ab.ca>>.