Department of Arts and Sciences: Math and Science Courses

PLAR Candidate Guide

Prior Learning Assessment and Recognition (PLAR)



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The Department of Arts & Sciences is dedicated to removing barriers and broadening the access to programs at Saskatchewan Polytechnic. We believe that adults acquire knowledge and skills through life and work experience that may align with courses within our programs.

Developed by program	February 2006			
Deviced	August 2007	October 2008	October 2012	January 2016
Revised	February 2017	May 2017	July, 2017	
Web ready – PLAR office	July 2006	January 2015		

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Why consider a PLAR assessment?

PLAR refers to the combination of flexible ways of evaluating people's lifelong learning, both formal and informal against a set of established standards. You can receive academic credit for your relevant lifelong learning. The Department of Arts & Sciences recognizes prior learning in a number of ways.

We recognize:

- Previous formal learning from an accredited training institution through transfer of credit.
- Previous informal learning or experiential learning through a comprehensive prior learning and recognition process.

What are the PLAR options?

To be eligible for PLAR, an applicant must first register or already be registered as a Saskatchewan Polytechnic student.

Option A: Individual course challenge

If you have current successful experience in the a professional field relating to your Saskatchewan Polytechnic program of choice, and have learned the skills and knowledge for **one or more** of the Arts & Sciences courses, you may apply to be assessed for each applicable course.

Fees:

- There will be a charge for each individual course assessment.
- For a listing of the specific PLAR fees, check the PLAR database or call Saskatchewan Polytechnic and ask to speak to the PLAR advisor/counsellor assigned to your program area at: 1-866-467-4278.

How many courses can be challenged through PLAR in Arts & Sciences?

Several math and science courses with PLAR challenges are available; check with your Saskatchewan Polytechnic program to determine which courses apply to your program. You may challenge as many of the relevant courses as you are able to prove prior skills and knowledge through assessment.

Department of Arts & Sciences Program Profile for Math and Science				
COURSE CODE	COURSE NAME	PLAR Challenge is available	PLAR Challenge is <u>not</u> available	PLAR Challenge <u>may</u> be available
ANAT 167	Anatomy & Physiology 1	\checkmark		
ANAT 267	Anatomy & Physiology 2	\checkmark		
APHY 160	Structure & Function			\checkmark
APHY 162	Anatomy & Physiology	\checkmark		
APHY 189	Anatomy & Physiology	\checkmark		
APHY 262	Anatomy & Physiology 2	\checkmark		
BIOL 100	Human Anatomy and Physiology 1			\checkmark
BIOL 101	Human Anatomy and Physiology 2			\checkmark
CALC 100	Integral Calculus			\checkmark
CALC 181	Technical Mathematics & Integral Calculus			\checkmark
CALC 190	Integral Calculus			\checkmark
CALC 281	Differential & Integral Calculus			\checkmark
CALC 282	Differential Equations & Transforms for Electronics			✓
CHEM 100	Chemistry	\checkmark		
CHEM 102	General Chemistry 1			\checkmark
CHEM 103	Essential Organic Chemistry			\checkmark
CHEM 222	Chemistry 2		Х	
CHEM 223	Chemistry 3		Х	
CHEM 282	Nuclear Chemistry		Х	
CHEM 301	Chemistry		Х	
COAP 136	Visual Basic Programming		X under revision	
COAP 172	Computer Applications			\checkmark
COMP 376	Principles of Database Design			\checkmark
COSC 262	Database Programming	\checkmark		
DRAW 100	Technical Drawing			
DRFT 103	Basic Mechanical Drafting	\checkmark		
DRFT 183	Drafting & Blueprint Reading			\checkmark

Department of Arts & Sciences Program Profile for Math and Science				
COURSE CODE	COURSE NAME	PLAR Challenge is available	PLAR Challenge is <u>not</u> available	PLAR Challenge <u>may</u> be available
DRFT 290	Basic Drafting			\checkmark
DRFT 291	Advanced Drafting			\checkmark
ENGP 284	Applied Mechanics 2			\checkmark
ENGP 288	Applied Mechanics 3			\checkmark
ENVR 234	Environmental Ecology 1		Х	
ENVR 235	Environmental Ecology 2		Х	
GRPH 181	Graphics			\checkmark
HINF 265	Health Information Systems	✓		
MAT 100	Mathematics for Instrumentation Engineering Technology		X under revision	
MAT 101	Applied Technical Mathematics			\checkmark
MAT 122	Technical Mathematics for Electrical Engineering Technologies			~
MAT 200	Advanced Mathematics for Geomatics		X under revision	
MAT 201	Technical Mathematics & Integral Calculus for EDD Technology			\checkmark
MAT 221	Differential Calculus for Instrumentation Engineering Technology		X under revision	
MAT 222	Technical Calculus with Computational Methods		х	
MAT 223	Calculus 1 for Electrical Engineering Technology			✓
MAT 226	Technical Mathematics & Differential Calculus			✓
MAT 229	Integral Calculus for Instrumentation Engineering Technology			✓
MAT 230	Numerical Calculus & Statistical Methods		Х	
MAT 231	Calculus 2 for Electrical Engineering Technology			✓
MAT 235	Technical Mathematics & Integral Calculus for Geomatics		X under revision	
MAT 237	Electrical Differential Equations & Transforms			✓
MAT 240	Transforms & Numerical Simulation		Х	
MAT 246	Analytical Geometry & Calculus			\checkmark

Department of Arts & Sciences Program Profile for Math and Science					
COURSE CODE	COURSE NAME	PLAR Challenge is available	PLAR Challenge is <u>not</u> available	PLAR Challenge <u>may</u> be available	
MAT 247	DEs & Transforms for Instrumentation Engineering Technology			\checkmark	
MATH 104	Applied Mathematics	\checkmark			
MATH 114	Applied Mathematics			\checkmark	
MATH 115	Analytic Geometry & Basic Calculus for Architecture			~	
MATH 116	Mathematics	\checkmark			
MATH 119	Mathematics			\checkmark	
MATH 121	Applied Mathematics			\checkmark	
MATH 125	Industrial Mathematics	\checkmark			
MATH 127	Trade Math	\checkmark			
MATH 130	Industrial Mathematics	✓			
MATH 134	Mathematics for Electricians			\checkmark	
MATH 136	Trade Mathematics			\checkmark	
MATH 138	Business Mathematics			\checkmark	
MATH 139	Business Mathematics	\checkmark			
MATH 158	Technical Mathematics for Electronics Technicians			✓	
MATH 159	Trade Mathematics			\checkmark	
MATH 165	Mathematics for Printers			\checkmark	
MATH 166	Applied Mathematics 1			\checkmark	
MATH 167	Applied Mathematics 2			\checkmark	
MATH 178	Mathematics 1 for Bioscience			\checkmark	
MATH 181	Mathematics			\checkmark	
MATH 182	Technical Mathematics & Differential Calculus			~	
MATH 187	Mathematics			\checkmark	
MATH 189	Mathematics 1			\checkmark	
MATH 192	Laboratory Mathematics			\checkmark	
MATH 193	Technical Mathematics & Differential Calculus			\checkmark	
MATH 199	Industrial Mathematics			\checkmark	

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Department of Arts & Sciences Program Profile for Math and Science					
COURSE CODE	COURSE NAME	PLAR Challenge is available	PLAR Challenge is <u>not</u> available	PLAR Challenge <u>may</u> be available	
MATH 278	Mathematics 2 for Bioscience			\checkmark	
MATH 280	Mathematics for Veterinary Technology			\checkmark	
MATH 281	Applied Mathematics			\checkmark	
MATH 289	Mathematics 2			\checkmark	
MATH 299	Intermediate Algebra & Basic Trigonometry			\checkmark	
MATH 384	Technical Mathematics for Electronic Technologists			~	
MATH 389	Mathematics			\checkmark	
MATH 390	Technical Mathematics for Engineering Calculations			\checkmark	
MICR 159	Microbiology	\checkmark			
NUTR 160	Nutrition	\checkmark			
NUTR 262	Nutrition			\checkmark	
PHYS 100	Physics			\checkmark	
PHYS 102	Applied Physics			\checkmark	
PHYS 103	Physics 1 for Geomatics			\checkmark	
PHYS 104	Physics for Engineering Design & Drafting Technology			\checkmark	
PHYS 105	Physics			\checkmark	
PHYS 120	Physics 1			\checkmark	
PHYS 184	Physics			\checkmark	
PHYS 187	Physics			\checkmark	
PHYS 200	Physics 2 for Geomatics			\checkmark	
PHYS 222	Physics 2			\checkmark	
PHYS 225	Physics 3			\checkmark	
PHYS 227	Physics: Statics & Strength of Materials			\checkmark	
PHYS 228	Physics: Light, Heat & Sound		Х		
PRNT 100	Blueprint Reading	✓			
PRNT 101	Blueprint Interpretation			\checkmark	
STAT 100	Introductory Statistics			✓	
STAT 120	Business Statistics			✓	

Department of Arts & Sciences Program Profile for Math and Science					
COURSE CODE	COURSE NAME	PLAR Challenge is available	PLAR Challenge is <u>not</u> available	PLAR Challenge <u>may</u> be available	
STAT 181	Introductory Statistics & Computer Applications 1		transfer credit option		
STAT 185	Introductory Statistics & Computer Applications		transfer credit option		
STAT 200	Statistics for Instrumentation Engineering Technology		X under revision		
STAT 201	Statistics for Construction Engineering Technologies			\checkmark	
STAT 202	Statistics for Health Sciences	\checkmark			
STAT 220	Statistics for Geomatics			\checkmark	
STAT 260	Statistics for Health Sciences	\checkmark			
STAT 281	Statistics & Computer Applications		transfer credit option		
STAT 283	Introductory Statistics & Computer Applications 2		transfer credit option		
STAT 284	Applied Statistics & Computer Applications		transfer credit option		
STAT 285	Introductory Statistics			\checkmark	
STRU 235	Applied Mechanics		X under revision		
THER 182	Thermodynamics 1	\checkmark			
THER 281	Thermodynamics 2			\checkmark	
THER 282	Thermodynamics 3			\checkmark	

For assistance call Saskatchewan Polytechnic Contact Centre toll-free at 1-866-467-4278 and ask to speak to the PLAR advisor/counsellor assigned to the certificate, diploma, or degree program to which you would want to apply PLAR credit for a course.

Is PLAR available at any time of the year?

PLAR challenges are currently being offered as requested.

Is it *easier* to challenge a course through PLAR or take the course?

Neither is easier. By using PLAR you may reduce the repetition of studying information that you already know. The PLAR process allows you to demonstrate knowledge you already have.

PLAR is not an easy way to certification, rather a "different" way to obtain certification. Your personal level of skill and experience will dictate which courses you choose to challenge. The self-audit section found later in this guide will help you decide if you have a good match of skill and knowledge for a specific course.

Methods of assessing prior learning

Assessment methods measure an individual's learning against course learning outcomes. The assessment methods listed below are the ones most commonly used, but other forms of flexible assessment may be considered. These assessments may include one or a combination of the following assessment tools:

- product validation and assessment
- challenge exam
- standardized tests
- performance evaluations (including skill demonstrations, role plays, clinical applications, case studies)
- interviews and oral exams
- equivalency (evaluations of learning from non-credit training providers)
- evidence or personal documentation files (providing evidence of learning from life and work experiences and accomplishments)

All documents that are submitted to Saskatchewan Polytechnic may be returned to the student after the final results have been given and the grade appeal deadline of seven days has passed. A copy of transcripts and certificates may be included in your evidence file, but be prepared to show original documents at the PLAR audit meeting for validation.

If I live out of town, do I have to travel to a main campus to do PLAR?

There will be times that you will need to meet with the program on campus. However, we will try to keep travel to a minimum.

What if I have a disability and need equity accommodations?

At Saskatchewan Polytechnic, we understand that sometimes services must be provided to students in a variety of ways to achieve the goals of fair representation. Therefore, the range of services provided for Education Equity students is as diverse as the needs of those students. We strive for equity (not uniformity) and provide varied services for students with differing needs. If more information is required, please contact a Saskatchewan Polytechnic counsellor at a campus closest to you or refer to the Saskatchewan Polytechnic website: http://saskpolytech.ca/student-services/support/accessibility-services.aspx

Are there other methods to gain Saskatchewan Polytechnic course credits for prior learning?

Transfer Credit

Yes, Saskatchewan Polytechnic will grant credit for previous training that is similar in content, objectives, and evaluation standards to Saskatchewan Polytechnic training. Transfer of credit is different from the PLAR process. Transfer Credit guidelines may be found at: http://saskpolytech.ca/admissions/resources/transfer-credit.aspx It is the student's responsibility to check with Registration Services for specific campus procedures on this policy. For specific information and guidelines regarding transfer of credit, contact a Saskatchewan Polytechnic educational counsellor.

Equivalency Credit

Equivalency credit refers to the application of credit you may have earned in a previously taken Saskatchewan Polytechnic course to your current Saskatchewan Polytechnic course. Apply at registration services for *equivalency credit*. This process should also be completed prior to your PLAR challenge. If these credits cannot be used for *equivalency credit*, you may use these accredited courses as part of your evidence for your PLAR challenge.

Contact us

If you are unsure about your career and educational goals, if more information is required, please contact a career or program counsellor at a campus closest to you.

Saskatchewan Polytechnic in Moose Jaw Counselling Services, Room 2.203 306-691-8311 or 306-691-8310 StudentServicesMooseJaw@saskpolytech.ca

Saskatchewan Polytechnic in Prince Albert Counselling Services, Room F203 (Technical Centre) 306-765-1611 StudentServicesPrinceAlbert@saskpolytech.ca

Saskatchewan Polytechnic in Regina Counselling Services, Room 228 306-775-7436 StudentServicesRegina@saskpolytech.ca

Saskatchewan Polytechnic in Saskatoon Counselling Services, Room 114 306-659-4050 StudentServicesSaskatoon@saskpolytech.ca



Since the requirements are different for each course, and each candidate has different experiences, the amount of time it takes to prepare your evidence will vary.

Steps to complete a self-audit

1. Read through the levels of competence as listed below.

Mastery:	I am able to demonstrate the learning outcome well enough to teach it to someone else.
Competent:	I can work independently to apply the learning outcome.
Functional:	I need some assistance in using the outcome.
Learning:	I am developing skills and knowledge for this area.
None:	I have no experience with the outcome.

Learning outcomes

For each learning outcome listed, please self-evaluate your competency levels and record in the appropriate column for each self-audit.

- 2. Take a few minutes and read through the following self-audits for each course you are interested in as a PLAR candidate.
- 3. Check your level of competence as you read through each of the learning outcomes for each course. The information will help you in your decision to continue with your PLAR application.
- 4. In order to be successful in a PLAR assessment, your abilities must be at the competent or mastery level for the majority of the learning outcomes. Some things to consider when determining your level of competence are:
 - How do I currently use this outcome?
 - What previous training have I had in this outcome: workshops, courses, on-the-job?
 - What personal development or volunteer experience do I have in this area?

Be prepared to explain the reason you chose this level if asked by an assessor.

5. Bring the completed self-audit to a consultation meeting with the department head or faculty member in step 3 – PLAR process of the candidate process for prior learning assessment.

Self-audit guide(s)

ANAT 167 – Anatomy and Physiology

You will study the human body and how it functions to maintain homeostasis. Your studies will include the chemical, cellular and tissue levels of organization. You will focus on the integumentary, nervous, endocrine, cardiovascular, lymphatic, and respiratory systems.

Credit unit(s): 5.0

ANAT 167 – A Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competen	Functional	Learning	None
1. Define the regulation	e organization of the human body and homeostatic					
2. Describe t	he chemical level of organization of the human body.					
3. Describe t	he structures and functions of human cells.					
4. Describe t	he structures and functions of human tissues.					
5. Describe t	5. Describe the structures and functions of the integumentary system.					
6. Describe the structures and functions of neural tissue.						
7. Describe the structures and functions of the nervous system.						
8. Describe t system.	he structures and functions of the autonomic nervous					
9. Describe t	he structures and functions of the endocrine system.					
10. Describe t maintenar	he components of blood and their functions in the needed of homeostasis.					
11. Describe t	he structures and functions of the cardiovascular system.					
12. Describe t	he structures and functions of the lymphatic system.					
13. Describe t	he structures and functions of the respiratory system.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Saskatchewan Polytechnic Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Assessment for this course may include one or more of the following methods:

Case study exam: Write a case study oriented exam with application of Saskatchewan Treatment Protocols.

Resources

ANAT 267 – Anatomy and Physiology 2

Building on the information you learned in ANAT 167 (Anatomy and Physiology 1), you will focus on the urinary, special senses, digestive, skeletal, muscular, and reproductive systems.

Credit unit(s): 4.0 Prerequisite(s): ANAT 167

ANAT 267 – A Mastery: Competent: Functional: Learning: None:	Anatomy and Physiology I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competen	Functional	Learning	None
1. Descr	ibe the structures and functions of the urinary system.					
2. Descr	ibe fluid, electrolyte and acid base balance.					
3. Descr somat	ibe the structures and functions of the special and ic senses.					
4. Descr	ibe the structures and functions of the digestive system.					
5. Descr	ibe the structures and functions of the skeletal system.					
6. Descr	ibe the structures and functions of the muscular system.					
7. Descr syster	ibe the structures and functions of the reproductive n.					

PLAR consultant for this course

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PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Assessment for this course may include one or more of the following methods:

Case study exam: Write a case study oriented exam with application of Saskatchewan Treatment Protocols

Resources

APHY 160 – Structure & Function

You will develop a basic understanding of the anatomy and physiology of the human body. You will discuss the concept of homeostasis and acquire knowledge of cells, tissues, organs and all the organ systems of the human body.

Credit unit(s): 3.0 Equivalent Course(s): APHY 189

APHY 160 – Structure & FunctionMastery:I am able to demonstrate it well enough to teach it to someone else.Competent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Describe the organization of the human body and homeostatic regulation.					
2. Describe the structures and functions of human cells.					
3. Discuss the characteristics and functions of human tissues.					
4. Describe the structures and functions of the integumentary system.					
5. Describe the structures and functions of the skeletal system.					
6. Describe the structures and functions of the muscular system.					
7. Describe the structures and functions of the nervous system.					
8. Describe the special and general senses.					
9. Describe the structures and functions of the endocrine system.					
10. Describe the components of blood and their functions in the maintenance of homeostasis.					
11. Describe the structures and functions of the cardiovascular system.					
12. Describe the structures and functions of the lymphatic system.					
13. Describe the structures and functions of the respiratory system.					
14. Describe the structures and functions of the digestive system.					
15. Describe the structures and functions of the urinary system.					
16. Discuss the structures and functions of the reproductive system.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

APHY 162 – Anatomy and Physiology

You will study the human body, how it is constructed and how it functions to maintain homeostasis. You will focus on the interaction between the structures of the body cells, tissues, organs and organ systems. The course content includes levels of organization of the human body, cells, tissues, integument and the skeletal, muscular, cardiovascular and respiratory systems. You will apply your theoretical knowledge in practical setting by performing dissections of specimens as part of the mandatory lab component.

Credit unit(s): 4.0 Equivalent course(s): ANAT 160, NURS 111

APHY 162 - Anatomy and PhysiologyMastery:I am able to demonstrate it well enough to teach it to someone else.Competent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Describe the anatomical and organizational levels that form the structure of the body.					
2. Describe the chemical basis for life.					
3. Describe the structure and functions of cells.					
4. Describe the characteristics and functions of the tissues of the body.					
5. Describe the structure and functions of the integumentary system.					
6. Describe the structure and functions of the skeletal system.					
7. Describe the muscular system.					
 Describe the components of blood and their functions in the maintenance of homeostasis. 					
9. Describe the structures and functions of the cardiovascular system, including the heart and the major blood vessels.					
10. Describe the structures and functions of the lymphatic system.					
11. Describe the structures and functions of the respiratory system.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Assessment for this course may include <u>one or more</u> of the following methods:

Challenge exam: Successful completion of the APHY 162 PLAR Exam (80 multiple choice and 4 short answer questions). The time allotted to write is 2 hours 15 minutes.

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

- Shier, D., Butler, J., & Lewis, R. (2013). *Hole's essentials of human anatomy and physiology* (9th ed.) Boston: WCB/McGraw-Hill.
- Saskatchewan Polytechnic. (2013). *APHY 162 Anatomy and Physiology I* [Course Manual]. Regina, SK.

Saskatchewan Polytechnic APHY 162 Quizpack recommended.

APHY 189 – Anatomy & Physiology

You will be introduced to the study of the human body and how it functions efficiently. You will study various body systems that are of critical importance for the promotion and maintenance of health.

Credit unit(s): 3.0

Equivalent(s): APHY 188, APHY 282, NURS 111

APHY 18 Mastery: Competer Functiona Learning: None:	 9 - Anatomy & Physiology I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competen	Functional	Learning	None
1. Desc	ibe the anatomical and organizational levels of the body.					
2. Desc cell.	ibe the chemical constituents, structure and functions of the					
3. Desc and t	ibe the characteristics and functions of tissues, membranes he integumentary system of the body.					
4. Desc articu	ibe the structure and function of the skeletal system, lations and the muscular system.					
5. Desc endo	ibe the structures and general functions of the nervous and crine systems.					
6. Desc of the	ibe the components of blood and their functions and the role heart in the cardiovascular system.					
7. Desc (card	ibe the structure and functions of the circulatory system iovascular and lymphatic) and respiratory system.					
8. Desc repro	ibe structures and general functions of digestive, urinary and ductive systems.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

PLAR assessment for this course may include one or more of the following methods:

Challenge exam: A 50-minute, closed book exam consisting of multiple choice questions

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related

resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Saskatchewan Polytechnic (current edition) *APHY 189 – Anatomy & Physiology*, course manual, Saskatoon, SK: Saskatchewan Polytechnic Saskatoon Campus

APHY 262 – Anatomy and Physiology 2

You will continue to study the human body, building on the information you learned in APHY 162 (Anatomy and Physiology 1). You will learn the structures and functions of the endocrine, urinary, nervous, digestive, sensory, and reproductive systems.

Credit unit(s): 4.0 Equivalent course(s): ANAT 265, NURS 111 Prerequisite(s): APHY 162

APHY 262 – A Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Describe t	he structures and functions of endocrine glands.					
2. Describe t	he structures and functions of the urinary system.					
3. Describe the structures and functions of nerve tissue.						
4. Describe t system.	he structures and functions of the central nervous					
5. Describe t system.	he structures and functions of the peripheral nervous					
6. Describe t	he structures and functions of the digestive system.					
7. Describe t senses.	he structures and functions of the general and special					
8. Describe t	he structures and functions of the reproductive system.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

PLAR assessment for this course may include one or more of the following methods:

Challenge exam: Successful completion of the APHY 262 PLAR Exam (76 multiple choice and 6 short answer questions). The time allotted to write is 2 hours 15 minutes.

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

- Shier, D., Butler, J., & Lewis, R. (2013). *Hole's essentials of human anatomy and physiology* (9th ed.) Boston: WCB/McGraw-Hill.
- Saskatchewan Polytechnic (2013). APHY 262 Anatomy and physiology 2 [Course Manual]. Regina, SK.

Saskatchewan Polytechnic APHY 262 Quizpack recommended.

BIOL 100 – Human Anatomy and Physiology 1

You will study the human body, how it is constructed and how it functions to maintain homeostasis. You will focus on the interaction between the structures of the body cells, tissues, organs, and organ systems. You will learn about levels of organization of the human body, cells, tissues, and the integumentary, skeletal, muscular, nervous, and sensory systems.

Credit unit(s): 3.0

BIOL 100 – Human Anatomy and Physiology 1Mastery:I am able to demonstrate it well enough to teach it to someone else.Competent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Describe the organization of the human body and homeostatic regulation.					
2. Describe the chemical levels of organization of the human body.					
3. Describe the anatomy and physiology of human cells.					
4. Describe the structures and functions of human tissues.					
5. Describe the structures and functions of the integumentary system.					
6. Describe the structures and functions of the skeletal system.					
7. Describe the structures and functions of the muscular system.					
8. Describe the structures and functions of the neural tissue.					
Describe the structures and functions of the central nervous system.					
10. Describe the structures and functions of the peripheral nervous system.					
11. Describe the structures and functions of the general and special senses.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. Please call the Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

PLAR assessment for this course may be available upon request. If your results for the selfaudit above are positive, please contact the consultant for more information. Please do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

Please ask the PLAR consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional.

BIOL 101 – Human Anatomy and Physiology 2

You will continue your studies of the human body. You will learn about fluids, electrolytes, and acid-base balance. You will study structures and functions of the cardiovascular, lymphatic, respiratory, digestive, urinary, endocrine, and reproductive systems.

Credit unit(s): 3.0 Prerequisite(s): BIOL 100

BIOL 101 – Human Anatomy and Physiology 2Mastery:I am able to demonstrate it well enoughCompetent:I can work independently to apply the oFunctional:I need some assistance in using the outrLearning:I am developing skills and knowledge foNone:I have no experience with the outcome.	to teach it to someone else. utcome. come. r this area.	Mastery	Competent	Functional	Learning	None
1. Describe the structures and functions of blo	od.					
 Describe the structures and functions of system. 	the cardiovascular					
3. Describe the structures and functions of	the lymphatic system.					
4. Describe the structures and functions of	the respiratory system.					
5. Describe the structures and functions of	the digestive system.					
6. Describe the structures and function of t	he urinary system.					
7. Describe fluids, electrolytes, and acid-ba	se balance.					
8. Describe the structures and functions of	endocrine system.					
 Describe the structures and functions of system. 	the reproductive					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. Please call the Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

PLAR assessment for this course may be available upon request. If your results for the selfaudit above are positive, please contact the consultant for more information. Please do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

Please ask the PLAR consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional.

CALC 100 – Integral Calculus

Building on the knowledge you acquired in MATH 182 (Technical Mathematics and Differential Calculus), you will study the differentiation and integration of algebraic and transcendental functions, and applications of these concepts to max/min problems, related rates, root solutions, areas, centroids and moments of inertia.

Credit unit(s): 5.0 Prerequisite(s): MATH 182

CALC 100 – 1 Mastery: Competent: Functional: Learning: None:	Integral Calculus I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Solve der	ivatives of transcendental functions.					
2. Solve inte	egration.					
3. Apply indefinite integral.						
4. Calculate	the definite integral.					
5. Solve app	plications of the definite integral.					
6. Solve centroids and moments of inertia.						
7. Evaluate	methods of integration.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

CALC 181 – Technical Mathematics & Integral Calculus

You will receive a sound calculus background for solving a wide range of problems in the field of mechanical engineering. You will receive an introduction to integral calculus and learn how to apply it in a variety of situations. Differential and integral calculus will be expanded to include transcendental functions.

Credit unit(s): 5.0 Equivalent course(s): CALC 190, MAT 221 Prerequisite(s): MATH 182

CALC 181 – Mastery: Competent: Functional: Learning: None:	Technical Mathematics & Integral Calculus I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Derive de	erivatives of transcendental functions.					
2. Derive integrals of algebraic and transcendental functions.						
3. Apply ind	lefinite integration.					
4. Apply det						
5. Use adva	nced methods of integration.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

CALC 190 –Integral Calculus

Building on the knowledge you acquired in MATH 193, you will study the differentiation and integration of algebraic and transcendental functions and the applications of these concepts to max/min problems, root solutions, areas, volumes, centroids, moments of inertia, arc length and surface area.

Credit unit(s): 5.0 Equivalent course(s): CALC 181, MAT 246 Prerequisite(s): MATH 193 minimum grade of 60

CALC 190 –I Mastery: Competent: Functional: Learning: None:	ntegral Calculus I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Solve der	ivatives of transcendental functions.					
2. Solve ant	iderivatives of algebraic and transcendental functions.					
3. Apply ind	efinite integration.					
4. Calculate	the definite integral.					
5. Solve app	lications of the definite integral.					
6. Solve centroids and moments of inertia.						
7. Use adva	nced methods of integration.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

CALC 281 – Differential & Integral Calculus

Building on the knowledge acquired in MATH 384 (Technical Mathematics), you will be introduced to the fundamentals of differentiation and integration of algebraic and transcendental functions. You will apply these concepts to curve sketching, max/min problems, related rates, velocity, acceleration, root solutions, bounded area, average value and root-mean-square value.

Credit unit(s): 4.0 Equivalent course(s): MAT 223 Prerequisite(s): MATH 384

CALC 281 – D Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Determine	e a limit.					
2. Determine	e a derivative by formal delta process.					
3. Solve deri of rules.	vatives of algebraic and transcendental functions by use					
4. Solve app	lied problems by use of differentiation.					
5. Apply met transcend	hods of indefinite integration to algebraic and ental functions.					
6. Calculate	a definite integral.					
7. Calculate methods.	a bounded area by the definite integral and numerical					
8. Solve app	lied problems by use of the definite integral.					
9. Solve for	the partial fraction decomposition of a rational expression.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources
CALC 282 – Differential Equations & Transforms for Electronics

Building on the knowledge acquired in CALC 281 (Calculus), you will study classical and Laplace transform methods of solving first and second order integral-differential equations. You will then apply these methods to solving problems that are modelled by first and second order integral-differential equations. The course will conclude with a basic study of the use of Laplace transforms to determine a transfer function and simplify a system modelled by transfer functions.

Credit unit(s): 3.0 Prerequisite(s): CALC 281

CALC 282 Mastery: Competen Functional Learning: None:	 Differential Equations & Transforms for Electronics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Solve	problems using differentiation and integration.					
2. Solve integr	first order differential equations by classical methods of ation.					
3. Solve applied problems that are modeled by first order differential equations.						
4. Solve expres	for the partial fraction decomposition of rational fraction ssions.					
5. Deter	mine Laplace transforms and inverse Laplace transforms.					
6. Solve	first and second order integral-differential equations and ems by Laplace transforms.					
7. Solve	for the transfer function of a differential equation.					
8. Solve by dif	for the transfer function of a dynamic system that is modelled ferential equations.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

CHEM 100 – Chemistry

You will receive a general overview of the fundamental principles in the structure, formation and interaction of chemical compounds and the importance of chemistry in industrial operations.

Credit unit(s): 2.0

CHEM 100 – C Mastery: Competent: Functional: Learning: None:	 hemistry I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competen	Functional	Learning	None
1. Describe	basic chemistry concepts.					
2. Discuss t	2. Discuss the principles of chemical bonding.					
3. Identify r	ames and formula of chemical compounds.					
4. Balance s	imple chemical equations.					
5. Describe acids, bases and salts.						
6. Perform b	pasic chemical calculations.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your results for the self-audit are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Assessment for this course may include <u>one or more</u> of the following methods:

1. Challenge exam

Exam consists of 25 multiple choice questions. Percentage of questions per learning outcome: LO1 - 20%, LO2 - 12%, LO3 - 20%, LO4 - 16%, LO5 - 16%, LO6 - 16%.

Example:

The chemical name for FeCl₂

- a) iron chloride
- b) iron dichloride
- c) iron (I) chloride
- d) iron (II) chloride

Correct answer is bolded

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Chem 100 Chemistry, course pack, Saskatchewan Polytechnic Building Systems Technician and Power Engineering Technician

Periodic Table (included with test)

Table of electronegativities (included with test)

Table of Common Ions and Charges (included with test)

Any introductory Chemistry text

CHEM 102 – General Chemistry 1

You will receive an overview of the fundamental chemical theory and properties of the elements and their compounds. You will develop basic laboratory skills and examine the practical aspects of chemical theory through various laboratory experiments.

Credit unit(s): 3.0

CHEM 102 - Mastery: Competent: Functional: Learning: None:	 General Chemistry 1 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Examine of chemi	qualitative and quantitative research methods in the study stry.					
2. Describe	the structure of matter at the microscopic level.					
3. Solve sto	3. Solve stoichiometry problems using the mole concept.					
4. Examine	chemical reactions that occur in aqueous solutions.					
5. Establish theory.	the electron configuration of an atom utilizing quantum					
6. Examine elements	the relationship between the electron configuration of and their chemical and physical properties.					
7. Establish atoms, a configura	the types and number of chemical bonds formed by nd the stability of a chemical compound from the electron ation of atoms.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. Please call the Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

PLAR assessment for this course may be available upon request. If your results for the selfaudit above are positive, please contact the consultant for more information. Please do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

Please ask the PLAR consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional.

CHEM 103 – Essential Organic Chemistry

You will learn the essentials of organic compounds and biochemical pathways important in understanding the physiology of health, nutrition and chemical reactions that occur in the body processes.

Credit unit(s): 3.0 Prerequisite(s): CHEM 102

CHEM 103 – Mastery: Competent: Functional: Learning: None:	Essential Organic Chemistry I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Describe	the properties of organic molecules.					
2. Describe	2. Describe the properties of carbohydrates.					
3. Describe	3. Describe the properties of lipids.					
4. Describe	the properties of proteins.					
5. Discuss ca	arbohydrate metabolism.					
6. Discuss li	6. Discuss lipid metabolism.					
7. Discuss a	7. Discuss amino acid metabolism.					
8. Discuss ir	tegrative metabolism.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. Please call the Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

PLAR assessment for this course may be available upon request. If your results for the selfaudit above are positive, please contact the consultant for more information. Please do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

Please ask the PLAR consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional.

COAP 172 – Computer Applications

You will receive an introduction to computer applications (such as a word processor, spreadsheet and database application). You will also gain knowledge of electronic spreadsheets in detail.

Credit unit(s): 3.0

COAP 172 – Mastery: Competent: Functional: Learning: None:	Computer Applications I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Perform f	ile management.					
2. Demonstr of a word	ate an understanding of the purpose and characteristics processing application.					
3. Demonstr of a sprea	ate an understanding of the purpose and characteristics					
4. Use a var information	iety of electronic spreadsheet functions to process					
5. Work with	n multiple worksheets in Microsoft Excel.					
6. Work with	n charts within Microsoft Excel.					
7. Use Exce	to solve advanced numerical problems.					
8. Use Exce	database functionality to store and manipulate data.					
9. Describe	the purpose of a relational database management system.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. Please call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your results for the self-audit are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

COMP 376 – Principles of Database Design

You will be introduced to the principles of database design and implementation in the context of data handling for a Geographic Information System (181GIS) project. Your studies will focus on the relational database model.

Credit unit(s): 1.0 Prerequisite(s): COMP 176 (concurrent)

COMP 376 – Mastery: Competent: Functional: Learning: None:	 Principles of Database Design I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Describe	1. Describe principles of database normalization.					
2. Correct p	2. Correct problems in existing database.					
3. Design a						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Prince Albert**. To arrange a PLAR consultation, call the Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

Please ask the consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional.

COSC 262 – Data Programming

You will learn the structure of program design, development, testing and documentation. You will learn to design single and multi-table databases using the Statistical Package for Social Sciences (SPSS) and Access. Your course content will include the fundamentals of algorithms and algorithm analysis.

Credit unit(s): 4.0

Prerequisite(s): COMP 176 (concurrent)

COSC 262 – I Mastery: Competent: Functional: Learning: None:	 Data Programming I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
4. Desig	n a single table Access database.					
5. Desig	5. Design queries for a single table Access database.					
6. Desig	n a multi-table Access database.					
7. Desig	n Access queries based on multiple tables.					
8. Desig	n SPSS file structures.					
9. Analyz	ze single variable using SPSS.					
10. Analy:	ze the relationship between multiple variables using SPSS.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

PLAR assessment for this course may include one or more of the following methods:

1. Evidence file

Provide documentation to support meeting all of the learning outcomes. The documentation can be a combination of the following:

- A resume highlighting skills and accomplishments that demonstrate how you have accomplished the stated learning outcomes.
- An employment validation letter (Appendix A).
- Sample database files you have created.
- Evidence of completion of private training courses, non-credit courses and workshops to support meeting of learning outcomes.
- Copies of certification documents (certificates, transcripts, attendance records, etc.)

DRAW 100 – Technical Drawing

You will learn how to use various drawing instruments to produce drawings and sketches for parts production.

Credit unit(s): 4.0 Equivalent Course(s): DRFT 191

DRAW 100 – Mastery: Competent: Functional: Learning: None:	Technical Drawing I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use vario	us drawing instruments.					
2. Demonst	rate orthographic drawing skills.					
3. Use dimensioning standards.						
4. Apply tol	erancing standards.					
5. Construct	sectional views.					
6. Determin	e coordinate data for job plans and tool path generation.					
7. Determine coordinate data for job plans and tool path generation.						
8. Construct	t isometric views.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Saskatoon** and **Regina**. To arrange a consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant(s) listed above for more information. If this course is ready for a PLAR challenge, assessment methods will be clarified during consultation with the Department Head. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

Resources

DRFT 103 – Basic Mechanical Drafting

You will learn the basic fundamentals used in the interpreting and sketching of technical drawings.

Credit unit(s): 2.0 Equivalent course(s): GRPH 181

DRFT 103 – Ba Mastery: Competent: Functional: Learning: None:	asic Mechanical Drafting I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply drafting fundamentals.						
2. Read drawings.						
3. Sketc	h system diagrams.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

PLAR assessment for this course may include <u>one or more</u> of the following methods:

1. Evidence file

Requirements for evidence file:

- Detailed resume
- Employment validation letter (Appendix A)
- PLAR Employer validation checklist request this from the PLAR consultant.
- Any current approved certificates. These must be confirmed by the PLAR assessor.
- Details of any workplace/industry training
- **2. Demonstration**—candidate will be provided with a set of blueprints and asked to identify the subject matter described in learning outcomes 2 & 3.
- 3. Interview (clarification of evidence file contents)
- 4. Exam—based on learning outcomes in self-audit list: #1-35%, #2-50%, #3-15%.

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Instructor handouts

ISA Reference book on P&ID's ISA-5.1-1984(r1992)

Instrumentation Drawing Symbols DFTG 6003 (SAIT Energy and Natural Resources Dept)

Flow Diagrams-Mechanical Flow DFTG 6006 6003 (SAIT Energy and Natural Resources Dept)

Flow Diagrams-Line symbols, Drawings, and Sections 6603 (SAIT Energy and Natural Resources Dept)

Flow Diagram Reading 6003 (SAIT Energy and Natural Resources Dept)

DRFT 183 – Drafting & Blueprint Reading

You will acquire sufficient drafting and blueprint reading skills to produce acceptable shop drawings. You will be able to read all shop drawings for fabricating and maintaining industrial equipment. Wherever possible, drafting courses will be modified to meet the specific requirements of the trade.

Credit unit(s): 4.0

DRFT 183 – I Mastery: Competent: Functional: Learning: None:	 Drafting & Blueprint Reading I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Prepare v	vorking sketches and drawings.					
2. Gener	ate assembly drawings and parts lists.					
3. Prepa	re patterns using development techniques.					
4. Interp	pret welding symbols.					
5. Comp	ose welding symbols.					
6. Devel	op weld fabrication drawings.					
7. Prepa	re material lists.					
8. Interp	pret engineering drawing.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Saskatoon** and **Prince Albert**. To arrange a PLAR consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

DRFT 290 – Basic Drafting

You will integrate non-CAD computer software with CAD software. You will practice the basic concepts of engineering graphics. You will sketch and use AutoCAD. You will use orthographic and isometric projection for shape description. You will draw sectional, auxiliary and partial views. You will develop skill in dimensioning and tolerancing using engineering drawing.

Credit unit(s): 5.0 Equivalent course(s): DRFT 174, DRFT 181, GRPH 190 Prerequisite(s): DRFT 390

DRFT 290 – B Mastery: Competent: Functional: Learning: None:	asic Drafting I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Complete	freehand engineering sketches.					
2. Demor	nstrate geometric constructions.					
3. Generate orthographic views.						
4. Apply dimensioning to engineering drawings.						
5. Develo	p auxiliary views.					
6. Constr	uct sectional views.					
7. Constr	uct engineering drawings.					
8. Prepar	e pictorial drawings.					
9. Create	dimensioned pictorial drawings.					
10. Produc	e fastener drawings.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

DRFT 291 – Advanced Drafting

Your Semester 1 introductory drafting skills will serve as a foundation for this course. You will learn how to prepare a complete set of working drawings on the CAD system. You will become familiar with standard drafting practices and symbols used in a number of different engineering fields.

Credit unit(s): 5.0 Prerequisite(s): DRFT 290, DRFT 391

DRFT 291 – Advanced DraftingMastery:I am able to demonstrate it well enough to teach it to someone else.Competent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Create engineering drawings that conform to drawing standards.					
2. Prepare engineering drawings using AutoCAD.					
3. Create organized and well documented part drawings.					
4. Choose drawing numbering system.					
5. Generate drawings for various production techniques.					
6. Select drawings suitable for various production techniques.					
7. Compare symbols used by the various engineering fields.					
8. Plan engineering drawing title blocks.					
 Combine standard codes and formulas in your engineering design drawing. 					
10. Generate sets of engineering drawings of assemblies.					
11. Create basic structural drawings.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

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ENGP 284 – Applied Mechanics 2

Your studies will focus on theory and calculations applied to the power engineering field. The course content includes mass, force, motion, energy, power, vectors and stress calculations.

Credit unit(s): 3.0 Prerequisite(s): THER 183

ENGP 284 – A Mastery: Competent: Functional: Learning: None:	Applied Mechanics 2 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Solve bas	ic problems involving vectors and force systems.					
2. Solve surfac	complex problems involving friction on horizontal res.					
3. Solve	basic problems involving work, power and energy.					
4. Solve	basic problems involving linear and angular motion.					
5. Solve	basic problems involving material stresses.					
6. Solve	basic problems involving bending of beams.					
7. Solve	complex problems involving simple machines.					
8. Solve	basic problems involving fluids.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

ENGP 288 – Applied Mechanics 3

You will apply your knowledge and skills by solving centrifugal force, moments, couples and centroids, torsion, fluid mechanics, flow and orifices as well as weirs problems.

Credit unit(s): 4.0 Prerequisite(s): ENGP 284

ENGP 288 – A Mastery: Competent: Functional: Learning: None:	 pplied Mechanics 3 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Solve com	plex problems involving linear motion.					
2. Solve	complex problems involving work, power and energy.					
3. Solve	complex problems involving angular motion.					
4. Solve	complex problems involving friction on inclined surfaces.					
5. Solve	complex problems involving forces and moments.					
6. Solve	complex problems involving stress and strain.					
7. Solve of sha	complex problems involving bending of beams and torsion fts.					
8. Solve	complex problems involving pressure and fluid flow.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

GRPH 181 – Graphics

You will develop suitable drafting and blueprint interpreting skills. You will learn how to read blueprints and produce shop drawings as needed in the trade. You will also learn how to take estimates from these drawings.

Credit unit(s): 4.0

GRPH 181 - 0 Mastery: Competent: Functional: Learning: None:	Graphics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
9. Use d	rafting equipment.					
10. Sketc	h a 2 dimensional object.					
11. Sketc	11. Sketch isometric and oblique drawings.					
12. Sketc	h orthographic drawings.					
13. Use e	ngineering lettering.					
14. Use s	cales to reduce and enlarge drawings.					
15. Use b	asic dimensioning.					
16. Interp	pret basic blueprints.					
17. Find I	ocation, orientation, and size for any feature.					
18. Prepa	re detailed working assembly drawings.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Ask the consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional.

HINF 265 – Health Information Systems

Your studies will prepare you to manage and evaluate changes in computer technology and information systems. You will acquire the skills to participate in analyzing and planning for system changes that affect health information files.

Credit unit(s): 4.0 Equivalent course(s): Co-requisite(s): COMP 175 (concurrent), COMP 176 (concurrent)

HINF 265 – H Mastery: Competent: Functional: Learning: None:	lealth Information Systems I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Collect da	ta from various sources.					
2. Create a	health information website.					
3. Apply the	information systems life cycle in a health records setting.					
4. Identify h	ow the HIS problems can be detected.					
5. Analyze a	health information system.					
6. Create a	system design.					
7. Create a	system implementation plan.					
8. Create a	request for proposal.					
9. Develop a	a project management plan.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If your self-audit results are positive, contact the consultant listed above. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

PLAR assessment for this course consists of providing documentation to demonstrate that you meet the course learning outcomes. Documentation may include <u>one or more</u> of the following:

1. Personal resume

A personal resume highlighting skills and accomplishments that demonstrates how you have accomplished the stated learning outcomes through, but not limited to:

- Self-assessment of strengths and weaknesses
- Personal and employment goals
- Training goals
- Letters from employers, colleagues, clients or students
- Evaluation reports
- Awards, grants or scholarships
- Job descriptions
- Related employment

2. Employer validation documents

See attached employer validation document.

3. Samples

Samples of projects you have worked on.

4. Documentation

Provide documentation as evidence of completion of private training courses, non-credit courses and workshops to support meeting all of the learning outcomes:

- Copies of certification documents (certificates, transcripts, attendance records, etc.)
- Detailed course outline stating the learning outcomes of the course
- Teacher/instructor evaluations

Resources

MAT 101 – Applied Technical Mathematics

You will gain a basic background in trigonometry and algebra that is needed to do problem solving in applied areas and to advance to a study of calculus. You will study measurement, computations, algebraic operations, simplifications and solutions, trigonometry, graphing, exponents and logarithms. This course is intended to meet your needs in the construction stream of engineering technologies.

Credit unit(s): 5.0 Equivalent course(s): MAT 120

MAT 101 – A Mastery: Competent: Functional: Learning: None:	 pplied Technical Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Apply prin	nciples of numerical computation.					
1. Apply alg	ebraic principles to simple expressions and equations.					
2. Apply prin	nciples of geometry.					
3. Apply prir	nciples of functions to graphs and analytical geometry.					
4. Apply prin	nciples of trigonometry and vectors.					
5. Apply alg	ebraic principles to factoring and fractional equations.					
6. Apply prin	nciples of ratio, proportion and variation.					
7. Apply alg	ebraic principles to solve a system of linear equations.					
8. Apply alg	ebraic principles to exponents and radicals.					
9. Apply alg	ebraic principles to solve quadratic equations.					
10. Apply alg	ebraic principles to exponential and logarithmic functions.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until

instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MAT 122 – Technical Mathematics for Electrical Engineering Technologies

You will learn basic algebra and trigonometry from the technical perspective. Your studies will focus on electronics standards and specifications, and algebraic and transcendental mathematics that are foundational to the electrical stream of programs and introductory statistics.

Credit unit(s): 6.0

MAT 122 – T	echnical Mathematics for Electrical Engineering					
Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Recognize	e the properties and set of any given number.					
2. Compute	with exact and approximate numbers.					
3. Examine	the fundamental axioms and laws of algebra.					
4. Simplify t	basic algebraic expressions.					
5. Solve bas	sic algebraic equations of linear and non-linear kinds.					
6. Formulate statemen	e algebraic expressions and equations from English Its and scientific laws to problem solve.					
7. Analyze r formal m	nathematical relationships and inverse relationships in athematical notation.					
8. Interpret	graphical properties of relations and functions.					
9. Solve sys determina	tems of simultaneous linear algebraic equations with ants and matrices.					
10. Interpret	complex numbers.					
11. Analyze t	he elements of exponentials and logarithms.					
12. Evaluate	logarithmic and exponential expressions.					
13. Solve log	arithmic and exponential equations and functions.					
14. Analyze e	exponential and logarithmic functions.					
15. Evaluate	the elements of trigonometry.					
16. Evaluate	trigonometric and inverse trigonometric expressions.					

MAT 122 – T Technolo Mastery: Competent: Functional: Learning: None:	Example 2 Control Contrelactive Control Control Control Control Control Control Con	Mastery	Competent	Functional	Learning	None
17. Solve trigonometric and inverse trigonometric equations and functions.						
18. Graph trigonometric and inverse trigonometric functions.						
19. Analyze I	he elements of position vectors and phasors.					
20. Evaluate sinusoidal and phasor expressions, equations and functions.						
21. Compute	21. Compute basic descriptive statistics.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MAT 201 – Technical Mathematics & Integral Calculus for EDD Technology

You will build on your knowledge and skills developed in Technical Mathematics and Differential Calculus to become familiar with the basic definitions, fundamental concepts and uses of integral calculus as related to engineering design and drafting.

Credit unit(s): 4.0 Prerequisite(s): MAT 226

MAT 201 – T Technolo Mastery: Competent: Functional: Learning: None:	echnical Mathematics & Integral Calculus for EDD gy I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply fur curves us	damentals principles of integral calculus to algebraic sing graphical and numerical approaches.					
2. Determin table of i	e indefinite and definite integrals by matching forms in a ntegrals.					
3. Apply nur results fo						
4. Use integ	ral calculus to find areas under and between curves.					
5. Use integ length of	ral calculus to find volume of a solid of revolution and an arc.					
6. Solve pro and more	blems involving surface area of an object, and centroid ent of inertia of an area.					
7. Use basic	descriptive statistics.					
8. Use basic	probability concepts.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

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MAT 223 – Calculus 1 for Electrical Engineering Technology

Your studies will focus on maximum-minimum problems, related rates, areas, mean and root mean square (RMS). This technical calculus course also includes the rules for differentiation and integration of algebraic and transcendental functions along with their inverses. You will become familiar with determinations, elementary electronic problem solving and other applications of calculus.

Credit unit(s): 5.0 Prerequisite(s): MAT 122

MAT 223 - Calculus 1 for Electrical Engineering TechnologyMastery:I am able to demonstrate it well enough to teach it to someone else.Competent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Explain the concepts of limit, continuity, and discontinuity.					
2. Determine the derivative of a function.					
3. Differentiate algebraic functions by rules.					
4. Use differential calculus to solve problems.					
5. Explain the concept of integration.					
6. Integrate algebraic functions by rules.					
7. Use integral calculus to solve problems.					
8. Differentiate transcendental functions by rules.					
9. Integrate transcendental functions by rules.					
10. Use calculus to solve problems.					
11. Use algebraic techniques to manipulate integrands.					
12. Perform transformations on integrands.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

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Resources

MAT 226 – Technical Mathematics & Differential Calculus

You will build on the skills developed in MAT 120 (Mathematics) and learn how to solve technical problems using basic algebraic skills and the differential calculus. You will become familiar with basic definitions and the fundamental concepts of mathematics and elementary derivatives.

Credit unit(s): 5.0 Prerequisite(s): MAT 120 Equivalent course(s): MAT 225

MAT 226 – Technical Mathematics & Differential CalculusMastery:I am able to demonstrate it well enough to teach it to someone else.Competent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Simplify trigonometric expressions using trigonometric identities.					
2. Solve trigonometric equations.					
3. Solve problems involving ratio, proportion and variation.					
4. Solve basic exponential and logarithmic equations.					
 Solve problems involving linear functions and the Cartesian coordinate reference frame. 					
6. Solve problems involving the conic sections and the Cartesian coordinate reference frame.					
7. Determine limits for algebraic functions.					
8. Calculate the derivatives of algebraic functions.					
9. Calculate the derivatives of basic transcendental functions.					
10. Solve problems involving applications of the derivative.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

MAT 229 – Integral Calculus for Instrumentation Engineering Technology

You will review the rules of the differentiation and integration of algebraic functions and then apply them to linear motion, areas, volumes, moments, work, fluid pressure, average value, arc length and surface area. You will study the integration of transcendental functions, techniques of integration and their applications in areas of interest to instrumentation engineering.

Credit unit(s): 3.0 Prerequisite(s): MAT 221

MAT 229 – II Technolo	ntegral Calculus for Instrumentation Engineering 9Y					
Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Determin functions	e the derivatives of algebraic and transcendental					
2. Determin functions						
3. Determine areas, volumes of rotation, arc length and surface area by using integral calculus.						
4. Manipula	e integrands using algebraic techniques.					
5. Formulate and solve problems by using integral calculus.						
6. Perform t	ransformations on integrands.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MAT 231 – Calculus 2 for Electrical Engineering Technology

Building on the graphical and numerical skills you developed in a previous calculus course, you will establish a working knowledge of the basic rules and methods rather than a theoretical understanding of derivations and proofs. You will study some simple applications that are relevant to electrical theory.

Credit unit(s): 3.0 Prerequisite(s): MAT 223

MAT 231 – C Mastery: Competent: Functional: Learning: None:	alculus 2 for Electrical Engineering Technology I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Formulate transcene						
2. Formulate	e expansion of functions in series.					
3. Solve by equations						
4. Solve by	classical methods the second order differential equations.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources
MAT 237 – Electrical Differential Equations & Transforms

You will study the solutions to first- and second-order differential equations by transformation methods with applications to physical electrical circuits.

Credit unit(s): 3.0 Prerequisite(s): MAT 231

MAT 237 – E Mastery: Competent: Functional: Learning: None:	lectrical Differential Equations & Transforms I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
5. Determin	e the Fourier Integral and Transform.					
6. Determin	e the LaPlace Transform and Inverse Transform.					
7. Use trans	forms to solve differential equations.					
8. Interpret	model formulation for electric systems.					
9. Formulat general F	e differential equations for RL and RC series circuits and RLC circuits.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MAT 246 – Analytical Geometry & Calculus

You will study analytical geometry, graphical and numerical methods for understanding of the concepts and operations of technical calculus, and problem solving using derivatives. You will also receive an introduction to differential and integral calculus.

Credit unit(s): 3.0 Equivalent course(s): MAT 220 Prerequisite(s): MAT 101 or MAT 120

MAT 246 – A Mastery: Competent: Functional: Learning: None:	 nalytical Geometry & Calculus I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Construct curves.	graphs and equations of straight lines and conic section					
2. Solve practical problems using analytic geometry.						
3. Determin	e derivatives of algebraic and transcendental functions.					
4. Solve gra	phical and practical problems using derivatives.					
5. Determine integrals of algebraic and transcendental functions.						
6. Solve pra	ctical problems using definite and indefinite integrals.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MAT 247 – DEs & Transforms for Instrumentation Engineering Technology

You will investigate first-order and second-order differential equations as models for mechanical, electrical, thermal and fluid physical systems. You will learn how to formulate those models and solve them using LaPlace transformation theory.

Credit unit(s): 3.0 Prerequisite(s): MAT 229

MAT 247 – D Technolo Mastery: Competent: Functional: Learning: None:	 Es & Transforms for Instrumentation Engineering I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Analyze	differential equations as models of physical systems.					
2. Construc	t traditional models of physical systems.					
3. Develop the theory and techniques of LaPlace transforms.						
4. Formulat systems.						
5. Formulat systems.	e differential equation models for basic fluid and thermal					
6. Formulat circuits.	e differential equation models for simple series electrical					
7. Construc	t modern models of physical systems.					
8. Determir systems.	e basic transform identities for open and closed loop					
9. Discuss u	iniversal parameters for second-order physical systems.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MATH 104 – Applied Mathematics

After reviewing basic mathematics, you will receive an introduction to mathematical concepts that support applications made in machine shop work.

Credit unit(s): 3.0

MATH 104 – A Mastery: Competent: Functional: Learning: None:	 pplied Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competen	Functional	Learning	None
1. Use basic mathematics.						
2. Use e	quation fundamentals.					
3. Use M	etric and Imperial units.					
4. Use ba	asic trigonometry.					
5. Use ba	asic trade formulas.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Regina** and **Saskatoon**. To arrange a PLAR consultation, check the location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Be prepared to discuss the expectations during a consultation meeting.

1. Challenge exam

- A scientific calculator is allowed
- The Machinists' Ready Reference and/or the Engineers Black Book is allowed
- The test consists of 44 questions: 30 multiple choice and 14 calculation questions. Percentage of questions per learning outcome: LO1 20%, LO2 8%, LO3 26%, LO4 26%, LO5 20%.

Example: The outside diameter of a pipe is 2.8 cm and the thickness of the pipe is 2 mm. The inside diameter of the pipe is

- (a) 2.6 cm
- (b) 2.4 cm
- (c) 2.2 cm
- (d) 0.8 cm

Correct answer is (b) 2.4 cm



Example: A and C are tangent points

$$r = 2.750''$$
 $AB = 3.25''$
Find the included angle, $\angle ABC$, to the nearest minute.
Correct answer:
Draw a radius to tangent point A. Radius will be
perpendicular to tangent line.
Draw a line from circle center to vertex point B. This line
will bisect $\angle ABC$.
 $\tan \theta = \frac{2.750}{3.25}$
 $\theta = 40.236^{\circ}$
 $\angle ABC = 2 \theta = 80.473^{\circ} = 80^{\circ} 28'$

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

- *Mathematics for Machine Technology*, 5th Edition, Smith. Thomson Delmar Learning, Clifton Park NY, 2004
- *Blueprint Reading for the Machine Trades,* 6th edition. Schultz and Smith, Pearson Prentice Hall, Upper Saddle River NJ, 2008
- *Machinists' Ready Reference*, 9th Edition. Weingartner, Prakken Publications, Ann Arbor, MI, 2001
- Engineers Black Book, USA Edition. Rapp, Pat Rapp Enterprises, Perth Western Australia, 2005

Machinist Math 104 Applied Mathematics, Saskatchewan Polytechnic

Any text book that covers basic mathematics, basic algebra, right triangle trigonometry, properties of lines, angles, circles.

MATH 114 – Mathematics for Architecture

You will develop the required background in algebra, geometry and trigonometry that is necessary to do basic calculations in applied areas to advance to a study of calculus. The course content includes algebraic operations, solution of equations, functions, graphing plane geometry, trigonometry and vectors. Problem solving will be emphasized throughout the course.

Credit unit(s): 3.0 Equivalent course(s): MAT 120, MAT 122

MATH 114 – Mastery: Competent: Functional: Learning: None:	Mathematics for Architecture I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use algeb technical	praic equations, factors, ratios and proportions to solve problems.					
2. Use fu functi	unctional notation to manipulate and evaluate algebraic ons.					
3. Plot g	raphs of mathematical data.					
4. Apply	the basic principles of plane geometry.					
5. Apply	the basic principles of plane trigonometry.					
6. Perfor	m basic arithmetic operations on vectors.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MATH 115 – Analytic Geometry & Basic Calculus for Architecture

You will study the basic elements of differential and integral calculus of algebraic functions. Analytical, graphical and numerical methods will be used to help you gain an understanding of the concepts and operations of technical calculus. The course content includes relevant engineering applications.

Credit unit(s): 3.0 Equivalent course(s): MAT 220, MAT 222, MAT 246 Prerequisite(s): MATH 114

MATH 115 – Mastery: Competent: Functional: Learning: None:	Analytic Geometry & Basic Calculus for Architecture I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply de	rivatives of algebraic functions.					
2. Evaluate derivative	slopes and extrema of algebraic functions using es.					
3. Solve tec	hnical problems using derivatives.					
4. Integrate	e elementary functions using basic techniques.					
5. Evaluate definite integrals using analytical and numerical methods.						
6. Solve tec	hnical problems using definite and indefinite integrals.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MATH 116 – Mathematics

You will review the fundamentals of mathematics, algebra and trigonometry. Topics include fractions, decimals, percents, equations, ratio and proportion, metric, areas, volumes and basic trigonometry.

Credit unit(s): 2.0

MATH 116 – M Mastery: Competent: Functional: Learning: None:	Iathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competen	Functional	Learning	None
1. Use basic mathematics.						
2. Use algebra.						
3. Use meas	surement systems.					
4. Calculate						
5. Use basic	trigonometry.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Be prepared to discuss the expectations during a consultation meeting.

1. Challenge exam

Exam incluces 30 questions: 18 multiple choice and 12 calculation questions. Percentage of questions per learning outcome: LO1 27%, LO2 30%, LO3 10%, LO4 30%, LO5 3%.

Example:

The outside diameter of a pipe is 2.8 cm and the thickness of the pipe 2mm. The inside diameter of the pipe is

a) 2.6 cm **b) 2.4 cm** c) 2.2 cm d) 0.8 cm

Correct answer is bolded

Example:

Find the surface area of a cylindrical tank 2.4 m high and 0.84 m in diameter.

 $A = 2 \pi r^2 + \pi d h$ A = 2(3.14)(0.41)2 + 3.14(0.84)(2.4)

Correct answer is bolded

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Pan Global Power Engineering Fourth Class, Part A, Volume 1, Chapters 2-8,

Any text book that covers basic mathematics, basic algebra, right triangle trigonometry.

Academic supplement, Power Engineering, (Steam tables, Refrigeration Table, & Handbook of Formulae & Constants) 2005 edition.

MATH 119 – Mathematics

You will develop the background knowledge in basic mathematics, while focusing on applications within the mechanical trades.

Credit unit(s): 2.0 Equivalent course(s): MATH 187

MATH 119 – Mastery: Competent: Functional: Learning: None:	Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None	
1. Use appropriate units.							
2. Use basic							
3. Use basic	c algebra.						
4. Calculate	4. Calculate perimeter, area and volume.						
5. Perform	trade specific calculations.						

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Moose Jaw** and **Saskatoon**. To arrange a consultation, check the location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant(s) listed above for more information. If this course is ready for a PLAR challenge, assessment methods will be clarified during consultation with the Department Head. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

Resources

MATH 121 – Applied Mathematics

You will learn the basic mathematical skills needed to function effectively in a commercial kitchen. Your studies will focus on decimals, fractions, percentages and the Imperial and metric measurement systems. You will apply these concepts to food quantity and cost calculations, and recipe yield conversions.

Credit unit(s): 2.0 Equivalent course(s): MATH 195

MATH 121 – Mastery: Competent: Functional: Learning: None:	Applied Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Perform percenta	calculations using whole numbers, fractions and ges.					
2. Solve equ						
3. Perform	calculations using weights and measures.					
4. Perform systems.						
5. Perform	recipe conversions and food costing.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Moose** Jaw, Saskatoon, and Prince Albert. To arrange a consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant(s) listed above for more information. If this course is ready for a PLAR challenge, assessment methods will be clarified during consultation with the Department Head. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

Resources

MATH 125 – Welding Mathematics

The course covers whole numbers, common and decimal fractions, percentages, ratio and proportion, angular measurements, and length, area and volume measurements in the Imperial and metric system. You will also learn to perform calculations as applied to the trade.

Credit Units: 2.0 Equivalent Courses: MATH 1402, MATH 170, MATH 186, MATH 187, MATH 191, MATH 294, MATH 299, MEAS 105, MEAS 182

MATH 125 – W Mastery: Competent: Functional: Learning: None:	Velding Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use basic	mathematics to solve trade-related problems.					
2. Use basic	equations to solve trade-related problems.					
3. Practice I	mperial and Metric measurement conversions.					
4. Calculate shapes.	perimeter, area and volume of common and irregular					
5. Practice v	velding trade calculations.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Moose Jaw**, **Saskatoon**, **Prince Albert**, and **Regina**. To arrange a consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

If your results for the self-audit above are positive, contact the appropriate consultant for more information. If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

1. Challenge exam

- A scientific calculator is allowed
- A formula sheet is included which has perimeter, area, and volume formulas for rectangles, triangles, trapezoids and circles, stretchout formulas, and some metric-Imperial conversions
- The test consists of 44 questions: 14 multiple choice and 30 calculation questions.
 Percentage of questions per learning outcome: LO 1 17%, LO 2 18%, LO 3 16%, LO 4 26%, LO 5 23%

Example: The outside diameter of a pipe is 2.8 cm and the thickness of the pipe is 2 mm. The inside diameter of the pipe is

- (a) 2.6 cm (b) 2.4 cm
- (c) 2.2 cm
- (d) 0.8 cm

Correct answer is (b) 2.4 cm

Example: Find the volume of a cylinder 1.6 m high and 80 cm in diameter.

Correct Answer: 0.804 m^3 $V = \pi r^2 h$ $V = (3.14)(0.4 \text{ m})^2(1.6 \text{ m})$ $V = 0.804 \text{ m}^3$

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful resources to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Welding Math 125 Industrial Mathematics course manual, Saskatchewan Polytechnic

Schell, F. (2009). Practical Problems in Mathematics for Welders, 5th Edition, Albany, NY: Delmar Publishers

Any text book that covers basic mathematics, basic algebra, and basic geometry.

MATH 127 – Trade Math

You will learn how to use whole numbers, common and decimal fractions, percentages, ratio and proportions, angular measurements, length, area and volume measurements in the Imperial and Metric system. You will also convert Imperial and Metric measurements.

Credit unit(s): 2.0

MATH 127 – Tr Mastery: Competent: Functional: Learning: None:	rade Math I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Operate a						
2. Perform r	nathematics calculations used in the construction process.					
3. Use Metri						
4. Perform r	nathematical calculations used in carpentry.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Moose Jaw**, **Saskatoon**, and **Prince Albert**. To arrange a consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

If your results for the self-audit above are positive, contact the consultant(s) listed above for more information. If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

1. Evidence file

An interview may be required to clarify evidence. Proof of completion of grade 10 math.

2. Theory test: The PLAR consultant may provide an exam blueprint upon request.

The challenge test is mostly short-answer questions requiring you to show some of your work, like the formula and/or substitution steps, and the solution step.

Examples:

Do the following showing your work on paper $4\frac{1}{4} - 2\frac{7}{8} =$

On paper, you would show any one of the following methods.

Method #1 $4\frac{1}{4} - 2\frac{7}{8} = \frac{17}{4} - \frac{23}{8} = \frac{34}{8} - \frac{23}{8} = \frac{11}{8} = 1\frac{3}{8}$

Method #2
$$4\frac{1}{4} - 2\frac{7}{8} = 3\frac{5}{4} - 2\frac{7}{8} =$$

The whole difference is 3-2=1

The fraction difference is $\frac{5}{4} - \frac{7}{8} = \frac{10}{8} - \frac{7}{8} = \frac{3}{8}$ Altogether the answer is $1\frac{3}{8}$

Suppose that you need to determine the number of 3/16-in sheets of plywood needed to press together to make a panel 1 $\frac{1}{2}$ -in. thick.

(a) Write down the calculation needed to determine the required number of 1/16-in. sheets.

$$1\frac{1}{2} \div \frac{3}{16} =$$

(b) Do the calculation.

8 sheets

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful resources to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

MATH 127 Manual

Practical Problems in Mathematics for Carpenters – Sixth Edition

MATH 130 – Industrial Mathematics

After reviewing fractions, decimals and percentages, you will study basic algebra, ratio and proportion, linear measure, areas, volumes, capacities, interrelationships used in the metric system, wage and time calculations, and financial calculations.

Credit unit(s): 2.0

MATH 130 – Mastery: Competent: Functional: Learning: None:	Industrial Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competen	Functional	Learning	None	
1. Use basic	1. Use basic mathematics.						
2. Use basic algebra.							
3. Use metri	c system.						
4. Calculate							
5. Perform t	rade calculations.						

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Regina** and **Saskatoon**. To arrange a consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

If your results for the self-audit above are positive, contact the appropriate consultant for more information. If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

1. Challenge exam

The test is 35 questions: 24 multiple choice questions and 11 calculation questions. Percentage of questions per learning outcome: LO1 20%, LO2 23%, LO3 17%, LO4 23%, LO5 17%.

Example: The outside diameter of a pipe is 2.8 cm and the thickness of the pipe is 2 mm. The inside diameter of the pipe is

a) 2.6 cm b) 2.4 cm c) 2.2 cm d) 0.8 cm Correct answer is (b) 2.4 cm

Example: Find the surface area of a cylindrical tank 2.4 m high and 0.84 m in diameter.

Correct Answer: 7.39 m² $A = 2 \pi r^2 + \pi d h$ $A = 2(3.14)(0.41)^2 + 3.14(0.84)(2.4)$ $A = 7.39 m^2$

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful resources to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Practical Problems in Mathematics for Automotive Technicians, 5th edition, Sformo and Moore, Delmar, 1998.

Auto Body Technician MATH 130 Industrial Mathematics manual.

Any basic mathematics and algebra text or workbook

MATH 134 – Mathematics for Electricians

You will study the fundamentals of mathematic measurements, calculations and problem solving for electrician studies. You will learn arithmetic computation, basic algebra, basic trigonometry and capacity calculations involving distance, area, volume and weight measurements.

Credit unit(s): 3.0

MATH 134 – Mastery: Competent: Functional: Learning: None:	Mathematics for Electricians I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Perform	basic calculator operations.					
2. Manipulate algebraic formulas and equations.						
 Solve problems involving fractions, decimals, scientific and engineering notations, powers and roots. 						
4. Apply rat	io, proportion, and variation.					
5. Calculate lengths, areas and volumes involving imperial and metric systems.						
6. Use the	Pythagorean Theorem and trigonometric functions.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Saskatoon**, and **Prince Albert**. To arrange a consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MATH 136 – Trade Mathematics

You will study basic mathematical concepts including whole numbers, decimals, fractions, percents, ratio proportion, squares and roots. You will also study the International System of Units in calculations such as finding length, capacity, mass, area and volume.

Credit unit(s): 3.0

MATH 136 – Mastery: Competent: Functional: Learning: None:	Trade Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use arithmetic.						
2. Use equa	2. Use equation fundamentals.					
3. Use metr						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MATH 138 – Applied Mathematics

You will develop the required background in algebra, geometry and trigonometry that is necessary to perform basic calculations in applied areas to advance to a study of calculus. Your studies will include algebraic operations, solution of equations, functions, graphing plane geometry, trigonometry, vectors as well as problem-solving strategies.

Credit unit(s): 3.0 Equivalent course(s): MAT 120

MATH 138 – A Mastery: Competent: Functional: Learning: None:	 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Use algebric technical p	raic equations, factors, ratios and proportions to solve problems.					
2. Use functions.	onal notation to manipulate and evaluate algebraic					
3. Plot graph	s of mathematical data.					
4. Apply the	basic principles of plane geometry.					
5. Apply the						
6. Perform ba	asic arithmetic operations on vectors.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, at **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR for this course <u>may</u> be under development. If your results for the self-audit above are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

If you are eligible to PLAR this course, ask the consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional

MATH 139 – Business Mathematics

Your studies will focus on an overview of human resource management and practices. You will learn the impact of job analysis; planning, recruiting, and selection processes; training, developing and compensation considerations, and management performance and labour relations. Employee and organizational ethics are discussed throughout the course with an emphasis on using human resource management to achieve high organizational performance.

Credit unit(s): 4.0 Equivalent course(s): FIN 120

MATH 139 – Mastery: Competent: Functional: Learning: None:	Business Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply rati problems	o, proportion and percent to solve a variety of business					
2. Determine	e trade discount, cash discounts and mark-ups.					
3. Perform e	exchange rate calculations.					
4. Solve con	nmercial problems using compound interest.					
5. Examine	the concept of Time Value of Money.					
6. Solve con	nmercial problems involving compound interest.					
7. Analyze o	rdinary annuities.					
8. Examine	debt retirement by using amortization.					
9. Examine	debt retirement by using sinking funds.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Moose Jaw**, **Saskatoon**, and **Prince Albert**. To arrange a consultation, consider your preferred location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

If your results for the self-audit above are positive, contact the appropriate consultant for more information. If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

1. Challenge exam: The exam has word problem questions. Some questions have tables to fill that require simple calculations. More information on the challenge exam can be obtained from the MATH 139 assessor (lead instructor).

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Saskatchewan Polytechnic Moose Jaw campus Mathematics Department. *Business mathematics* 2015.

Website: http://programs.saskpolytech.ca/math139

Sharp EL 738 Financial Calculator

MATH 158 – Technical Mathematics for Electronics Technicians

Your studies will focus on mathematics that is directly related to application in the electronics technician's field of study. The course content includes operations with signed numbers, powers of ten and engineering notation, exponents and radicals, solving and manipulating equations, basic trigonometry, vectors and phasors, the sine wave, complex numbers and the j-operator, logarithms, computer number systems, and the fundamentals of Boolean algebra.

Credit unit(s): 3.0 Equivalent Course(s): MAT 122, MATH 384

MATH 158 – Mastery: Competent: Functional: Learning: None:	Technical Mathematics for Electronics Technicians I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None	
1. Use basic	mathematics.						
2. Use basic	2. Use basic algebra and laws of exponents.						
3. Use the l	pinary and hexadecimal number systems.						
4. Use bool	ean algebra.						
5. Apply trig	gonometry and complex numbers to phasor problems.						
6. Apply sin	6. Apply sine and cosine graphs.						
7. Apply ex	ponents and logarithms.						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MATH 159 – Trade Mathematics

You will learn whole numbers, common and decimal fractions, percentages, ratio and proportion, angular measurements, and length, area and volume measurements in the Imperial and Metric system. You will also learn to perform calculations as applied to the trade.

Credit unit(s): 2.0

MATH 159 – Mastery: Competent: Functional: Learning: None:	Trade Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use basic	mathematics.					
2. Use basic algebra.						
3. Use Impe	erial measurement system.					
4. Use metr	ic measurement system.					
5. Calculate area and volume.						
6. Perform t	rade calculations.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MATH 165 – Mathematics for Printers

You will acquire the basic mathematics skills required for entry level occupations in the graphics/print industry. Your studies will include basic mathematics, problem solving, and measurement systems.

Credit unit(s): 2.0

MATH 165 – Mastery: Competent: Functional: Learning: None:	Mathematics for Printers I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use basic	1. Use basic mathematics for graphic arts.					
2. Use meas						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MATH 166 – Applied Mathematics 1

You will solve practical problems involving fractions, decimals and percent; work with ratios and solve direct and indirect proportion problems; solve exponential and logarithmic equation, and manipulate formulas to solve practical problems. You will also study the functional notation and evaluate algebraic functions.

Credit unit(s): 3.0

MATH 166 – Mastery: Competent: Functional: Learning: None:	 Applied Mathematics 1 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Solve prace	ctical problems involving fractions, decimals, & percentages.					
2. Convert between Imperial and Metric systems.						
3. Solve prace	ctical problems involving ratio and proportions.					
4. Solve exp						
5. Manipulat	e formulas to solve practical problems.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 167 – Applied Mathematics 2

You will learn about functional notation; study the basics of plane geometry and trigonometry, and perform basic vector calculations.

Credit unit(s): 3.0 Prerequisite: MATH 166

MATH 167 – Mastery: Competent: Functional: Learning: None:	Applied Mathematics 2 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None	
1. Use functi	1. Use functional notation to manipulate and evaluate algebraic functions.						
2. Plot graphs of mathematical data.							
3. Apply the	basic principles of plane geometry.						
4. Apply the	4. Apply the basic principles of plane trigonometry.						
5. Perform b	asic arithmetic operations on vectors.						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MATH 178 – Mathematics 1 for Bioscience

You will review the fundamental concepts of algebra. Your studies will focus on equations of various types, systems of linear equations, variation, properties of exponents and logarithms, logarithmic and exponential equations and graphing. Biological and chemical applications will be used whenever possible.

Credit unit(s): 2.0 Prerequisite(s): STAT 181(concurrent)

MATH 178 – Mastery: Competent: Functional: Learning: None:	Mathematics 1 for Bioscience I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None	
1. Use dime	1. Use dimensional analysis.						
2. Use algebra.							
3. Solve line	ear and quadratic equations.						
4. Use loga							
5. Use ratio	and proportion.						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MATH 181 – Mathematics

You will review basic mathematics and the Imperial and Metric systems of measurement. You will be introduced to mathematical concepts that support applications in the industrial mechanics trade and your studies will focus on these various applications.

Credit unit(s): 4.0

MATH 181 - Mastery: Competent: Functional: Learning: None:	Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use basic	mathematics.					
2. Use the I						
3. Use algel	bra.					
4. Use basic	c geometry and trigonometry.					
5. Perform Trade Calculations I.						
6. Perform	Trade Calculations II.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Saskatoon** and **Prince Albert**. To arrange a consultation, consider your preferred location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

MATH 182 – Technical Mathematics & Differential Calculus

You will review trigonometry, algebraic, logarithmic, exponential and trigonometric functions and their graphs, and trigonometric identities. You will also receive an introduction to differential calculus involving algebraic functions.

Credit unit(s): 6.0

Equivalent course(s): MAT 122, MAT 226

MATH 182 – Mastery: Competent: Functional: Learning: None:	Technical Mathematics & Differential Calculus I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use alge	braic equations to solve equations.					
2. Solve rig	2. Solve right and oblique triangles.					
3. Use trigo	nometric identities and equations.					
4. Solve eq	uations involving exponential and logarithmic functions.					
5. Calculate derivatives of algebraic functions.						
6. Solve pro	oblems requiring the application of derivatives.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MATH 187 – Mathematics

You will develop the background knowledge in basic mathematics, while focusing on applications within the mechanical trades.

Credit unit(s): 2.0 Equivalent course(s): MATH 119

MATH 187 – Mastery: Competent: Functional: Learning: None:	Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use appropriate units.						
2. Use basic mathematics.						
3. Use basic algebra.						
4. Calculate perimeter, area, and volume.						
5. Perform trade calculations.						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MATH 189 – Mathematics 1

You will review the fundamental concepts of algebra and trigonometry. Your studies will focus on equations of various types, systems of linear equations, variation, properties of exponents and logarithms, logarithmic and exponential equations, graphing and trigonometry. Whenever possible, problem solving will be directly related to chemistry applications. You will also receive an introduction to calculus.

Credit unit(s): 4.0

MATH 189 – Mastery: Competent: Functional: Learning: None:	Mathematics 1 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use algebra.						
2. Solve linear and quadratic equations.						
3. Solve systems of equations.						
4. Use logarithms.						
5. Use ratio and proportion.						
6. Use trigonometry to solve problems in applied sciences.						
7. Calculate derivatives.						

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 192 – Laboratory Mathematics

You will develop the mathematical skills needed to work in a research or diagnostic laboratory. Your studies will focus on the various types of solution calculations and different units of measurement.

Credit unit(s): 2.0

MATH 192 – Mastery: Competent: Functional: Learning: None:	Laboratory Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply the rules for rounding and significant figures.						
2. Use SI system of units.						
3. Perform chemical concentration conversions.						
4. Perform acid/base calculations.						

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 193 – Technical Mathematics & Differential Calculus

Your studies will review trigonometry, trigonometric identities and algebraic, logarithmic, exponential and trigonometric functions and their graphs. You will also receive an introduction to differential calculus of algebraic functions.

Credit unit(s): 5.0 Equivalent course(s): MATH 182

MATH 193 – Mastery: Competent: Functional: Learning: None:	Technical Mathematics & Differential Calculus I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use algeb	praic manipulations to solve algebraic equations.					
2. Solve right and oblique triangles.						
3. Calculate radian measure, arc length, area and rotation.						
4. Calculate graphs of the trigonometric functions.						
5. Construct trigonometric identities and functions.						
6. Solve logarithmic and exponential equations.						
7. Calculate derivatives of algebraic functions.						
8. Solve pro	blems requiring the application of derivatives.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 199 – Industrial Mathematics

You will review basic mathematics and the metric system of measurement. The course content includes percent, ratio, proportion, area, volume and equations. You will then focus on the applications of mathematics in the trade that include electrical, pressure, pneumatics and elementary thermodynamics calculations.

Credit unit(s): 4.0

MATH 199 – Mastery: Competent: Functional: Learning: None:	Industrial Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use basic mathematics.						
2. Use metric units.						
3. Use basic algebra.						
4. Use basic geometry and trigonometry.						
5. Perform basic trade calculations.						
6. Perform advanced trade calculations.						

PLAR consultant for this course

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PLAR assessment methods

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Resources
MATH 278 – Mathematics 2 for Bioscience

You will review the fundamental concepts of trigonometry and be introduced to elementary topics in calculus, including limits and derivatives. Biological and chemical applications will be used whenever possible.

Credit unit(s): 2.0

Prerequisite(s): MATH 178, STAT 283 (concurrent)

MATH 278 – Mastery: Competent: Functional: Learning: None:	Mathematics 2 for BioscienceI am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use trigo	phometry to solve problems in applied sciences.					
2. Use limit	s to explore the behaviour of functions.					
3. Use derivatives to solve problems in the applied sciences.						
4. Solve sys	stems of equations using techniques from linear algebra.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 280 – Mathematics for Veterinary Technology

You will review basic mathematical concepts such as ratio, proportion, fractions, decimals, percents and equations. You will also receive an introduction to logarithmic and exponential functions and graphing. Your studies will focus on units of measurement and dilution and solution calculations.

Credit unit(s): 3.0

MATH 280 – Mastery: Competent: Functional: Learning: None:	Mathematics for Veterinary Technology I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use basic	mathematics.					
2. Use dimensional analysis to solve equations.						
3. Use logar	rithms.					
4. Use grap	hs.					
5. Calculate dilutions.						
6. Calculate	solutions.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 281 – Applied Mathematics

You will review basic mathematical concepts that are important to people in the hospitality industry. Problems dealing with recipe preparation, food costing and profitability will be emphasized.

Credit unit(s): 1.0 Equivalent course(s): MATH 121

MATH 281 – Mastery: Competent: Functional: Learning: None:	Applied Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use basic	1. Use basic mathematics.					
2. Use basic algebra.						
3. Use metr	ic system.					
4. Convert between Metric, US and Imperial measurement systems.						
5. Perform	rade calculations.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 289 – Mathematics 2

Building on the knowledge you acquired in Mathematics 1 (MATH 189), you will focus on differential and integral calculus. You will learn differentiation of algebraic and transcendental functions, and applications of the derivative. You will study numerous methods of integration and selected applications of integration. Your studies will also include an introduction to partial derivatives.

Credit unit(s): 4.0 Prerequisite(s): MATH 189

MATH 289 – Mastery: Competent: Functional: Learning: None:	Mathematics 2 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Derive de	erivatives of transcendental functions.					
2. Solve pro	blems requiring the application of derivatives.					
3. Derive integrals of algebraic and transcendental functions.						
4. Calculate	partial derivatives.					
5. Apply indefinite integration.						
6. Apply definite integration.						
7. Use adva	nced methods of integration.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 299 – Intermediate Algebra & Basic Trigonometry

You will review the fundamentals of algebra and trigonometry. The course content includes algebraic operations on equations, problem solving, quadratic equations, systems of linear equations, areas, volumes and basic trigonometry.

Credit unit(s): 2.0

Equivalent course(s): MAT 120, MAT 122, MATH 182, TSYH 120

MATH 299 – Mastery: Competent: Functional: Learning: None:	Intermediate Algebra & Basic Trigonometry I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use appr	opriate units.					
2. Use alge	bra to simplify expressions.					
3. Solve equ	uations and systems of linear equations.					
4. Solve wo	rd problems.					
5. Calculate perimeter, area and volume.						
6. Use basic	c trigonometry.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 384 – Technical Mathematics for Electronic Technologists

You will study the operations and procedures dealing with algebraic fractions and equations, quadratic equations, simultaneous equations, determinants, exponents, radicals, logarithmic and exponential equations, trigonometry, vectors, phasors, number systems and introductory Boolean algebra.

Credit unit(s): 4.0

s ne else.	Mastery	Competent	Functional	Learning	None
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PLAR consultant for this course

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PLAR assessment methods

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Resources

MATH 389 – Mathematics

You will study the mathematics, algebra and geometry needed to solve various aviation related mathematical and physics problems.

Credit unit(s): 3.0

MATH 389 - Mastery: Competent: Functional: Learning: None:	•Mathematics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Solve a	variety of mathematical problems.					
2. Solve in- techniqu	flight mathematical problems using calculators and mental es.					
3. Solve va	rious aviation related mathematical problems.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MATH 390 – Technical Mathematics for Engineering Calculations

Building on MATH 299, you will receive advanced instruction and practice using algebra and geometry-trigonometry with emphasis on calculations used in THER 281 (Thermodynamics 2) and ENGP 284 (Applied Mechanics 2).

Credit unit(s): 1.0 Equivalent course(s): CALC 181, MAT 246, MATH 182 Prerequisite(s): MATH 299

MATH 390 – Mastery: Competent: Functional: Learning: None:	Technical Mathematics for Engineering Calculations I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Solve algo	ebraic equations.					
 Use trigonometry to solve problems involving radian measures and oblique triangles. 						
3. Solve sim	ple exponential and logarithmic equations.					
4. Use linea	r interpolation to estimate values in a table.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to this person.

PLAR assessment methods

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Resources

MICR 159 - Microbiology

You will study the various types of microorganisms, their characteristics and their role in the spread of infection. You will be introduced to the principles of health care epidemiology and the commonly used agents to control microbial growth. You will acquire knowledge of the major viral, bacterial and fungal diseases. Using group work, independent learning as well as laboratory activities you will study how the major diseases affect the immune system and the organs of the body. You will study the responsibilities and roles of health care workers in the chain of infection will be emphasized.

Credit unit(s): 1.0 Prerequisite(s): APHY 162 (concurrent) Equivalent(s): MICR 160

MICR 159 - M	icrobiology		ч			
Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competen	Functional	Learning	None
1. Examine	the foundations of the science of microbiology.					
2. Examine public he	the major principles of epidemiology and their uses in the althcare system.					
3. Describe the immu	the pathogenesis of infectious diseases and its effects on ine system.					
4. Examine the sprea	microbial growth and the major methods for preventing d of communicable diseases.					
5. Examine	the major viral, bacterial and fungal diseases of humans.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

If your results for the self-audit above are positive, contact the appropriate consultant for more information. If you qualify for PLAR, you may be asked to demonstrate your learning with the following presentation and exam. A passing grade for both components is required to successfully challenge this course. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

1. PowerPoint presentation (30%)

- Candidate will create and present a 10 minute PowerPoint presentation by selecting one of the four following topics: Tuberculosis, syphilis, gonorrhea or HIV.
- The purpose of the presentation is to create an educational tool suitable for a target audience of either a client newly diagnosed with one of the diseases mentioned, or a group of high risk individuals.
- Using a minimum of five credible resources (list the references on the last slide using APA style), make sure you address the following:

- Symptoms of the disease
- Cause(s) of the disease
- Who in Saskatchewan, are the high risk population(s) of contracting the disease
- Role and responsibilities of the nurse
 - Resources and education for the client (provide some links/tips)
 - Protection and safety (procedures/personal protective equipment) of not only the client, the nurse, family, others
- The PLAR consultant may provide a presentation scoring guide upon request.

AND

2. Comprehensive challenge exam (70%)

- Multiple choice and short answer format. There are 60 multiple choice questions, and two short answer questions. Candidates are allowed two hours to write the exam.
- The PLAR consultant may provide an exam blueprint upon request. A blueprint displays the number of questions on the exam for each critical outcome and learning step which will assist you to plan your knowledge review prior to completing the challenge exam.

The following are two examples of multiple choice questions:

The historical event that established microbiology as a science was the

- A) discovery of spontaneous generation.
- B) discovery of the Gram stain.
- C) identification of the "germ theory" of disease.
- D) development of the microscope.

Correct answer: D

Which of the following organisms causes scarlet fever?

- A) Staphylococcus aureus
- B) *Neisseria gonorrhoeae*
- C) Streptococcus pyogenes
- D) Corynebacterium epidermidis

Correct answer: C

The following is an example of a short answer question:

List and describe each of the components of the chain of infection.

Correct answer:

The chain of infection involves the following components: an infectious agent (microbe), a reservoir, a portal of exit, a mode of transmission, a portal of entry to a host and a susceptible host.

The infectious agent is any microorganism such as a bacteria, virus, fungus or protozoa. The reservoir is a place where the microbe can survive.

The portal of exit is the way they leave the reservoir in order to find another host to infect. Examples include blood, body fluid (excretions or secretions) and soil.

The mode of transmission is how the microbe leaves the reservoir and gets transferred to another host. There is contact, droplet, airborne, vehicle or vectorborne transmission.

The portal of entry is how the microbe gains access to the new host which is often the same as the portal of exit.

The susceptible host is a person who is not resistant to the microbe and ends up infected with the microbe.

Resources

NUTR 160 – Nutrition.

You will develop an understanding of the role of nutrition as it relates to general and oral health and disease. Through a variety of learning experiences which may include classroom instruction, group activities, practical exercises and independent learning you will acquire knowledge of the standards and guidelines for planning and assessing the nutritional adequacy of diets, you will learn about the function and dietary sources of the major nutrients. You will examine the nutritional needs throughout the lifecycle as well as nutrition-related oral health issues

Credit unit(s): 3.0

NUTR 160 – N Mastery: Competent: Functional: Learning: None:	utritionI am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply prinassessme	nciples of good nutrition and healthy eating to the nt of dietary intakes.					
2. Examine	he role of fat in health and disease.					
3. Examine	he role of carbohydrate in health and disease.					
4. Examine	he role of dietary protein in health and disease.					
5. Examine disease.	he role of vitamins, water and minerals in health and					
6. Examine	strategies to achieve and maintain a healthy body weight.					
7. Examine nutrition-	nutritional needs throughout the lifecycle including related oral health issues.					
8. Examine oral healt	the role of nutrition, food choices and eating patterns on h.					

PLAR consultant for this course

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PLAR assessment methods

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Challenge exam consisting of 41 multiple choice questions, 18 short answer questions, and 1 case study question.

Resources

NUTR 262 – Nutrition

You will learn the basics of nutrition as it relates to general/oral health and disease. You will develop a basic understanding of the functions and dietary sources of the major nutrients; discuss the nutritional needs throughout the lifecycle as well as nutrition-related oral health issues.

Credit unit(s): 1.0 Prerequisite(s): DENT 163 Equivalent Course(s): NUTR 160

NUTR 262 – Mastery: Competent: Functional: Learning: None:	Nutrition I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use the papply to	principles of good nutrition and healthy eating as they the assessment of dietary intakes.					
2. Discuss t	he role of nutrients in general and oral health.					
3. Discuss t issues th	he nutritional needs and nutrition-related oral health roughout the lifecycle.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 100 – Physics

You will be introduced to the fundamental concepts of nuclear chemistry. Your studies will include: radioactivity, rates of decay, nuclear reactions, radioactive isotopes, radiation measurement, radiation units and safety, the biological effects of radiation, and the use of radiation detection devices in the laboratory.

Credit unit(s): 2.0

Prerequisite(s): CHEM 178, STAT 185

PHYS 100 - Physics Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Express physical quantities correctly.					
2. Solve problems relating to rectilinear motion.					
3. Solve problems of vector addition.					
4. Solve problems involving translational equilibrium.					
5. Solve problems involving friction.					
6. Solve problems involving work, energy and power.					
7. Solve problems involving electric forces and fields.					
8. Solve problems involving capacitive circuits.					
9. Solve problems involving capacitors in DC circuits.					
10. Solve problems involving magnetic forces and fields.					
11. Solve problems involving inductive circuits.					
12. Solve problems involving inductors in DC circuits.					
13. Solve problems involving momentum.					
14. Solve problems involving rotational equilibrium.					
15. Solve problems involving rigid body rotation.					
16. Solve problems involving the mechanical advantage and efficiency of simple machines.					
17. Solve problems relating to temperature.					
18. Solve problems relating to heat gain and loss.					

PHYS 100 - Mastery: Competent: Functional: Learning: None:	 Physics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
19. Solve pro	oblems relating to heat transfer.					
20. Solve pro	20. Solve problems involving physical optics.					
21. Solve pro						

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 102 – Applied Physics

Your studies will focus on the basic physics principles of: vectors; Newton's three laws of motion; work, energy, power, impulse and momentum; temperature, heat, and fluid mechanics.

Credit unit(s): 4.0 Equivalent course(s): MECA 121

PHYS 102 – A Mastery: Competent: Functional: Learning: None:	Applied Physics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None	
1. Solve pro	blems of vector addition.						
2. Solve pro	blems involving Newton's three laws of motion.						
3. Solve pro	blems involving work, energy, and power.						
4. Solve pro	blems involving impulse and momentum.						
5. Solve pro	blems involving temperature.						
6. Solve pro	blems involving heat.						
7. Solve pro	7. Solve problems involving static fluid mechanics.						
8. Solve pro	8. Solve problems involving fluid in motion.						

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 103 – Physics 1 for Geomatics

You will study some principles of systematic thinking and problem solving as found in physics and encountered in the fields of Geomatics mapping and surveying. You will practice calculation management involving numbers, vectors and data as found in Newtonian mechanics, work and energy, temperature and thermal stress and strain, and electricity and magnetism.

Credit unit(s): 4.0 Corequisite(s): MAT 120

PHYS 103 – Mastery: Competent: Functional: Learning: None:	 Physics 1 for Geomatics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Apply print involving	nciples of computation and elementary statistical analysis measurement and error.					
2. Apply New systems a	wton Laws of motion using trigonometry, coordinate and vectors.					
3. Solve pro	blems involving work, kinetic and potential energies.					
4. Solve pro	blems involving rotational kinematics and dynamics.					
5. Solve problems involving temperature and thermal expansion.						
6. Solve pro	blems involving electricity and magnetism.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 104 – Physics for Engineering Design & Drafting Technology

You will study vector applications of Newton's three laws and the conservation of momentum involving free-body and vector diagrams on coordinate reference frames. You will perform an experiment demonstrating Newton's laws to determine the coefficient of friction between a moving object and its contact surface. You will also study the conservation of energy in the work, power and energy section as well as the static and dynamic properties of fluids.

Credit unit(s): 4.0 Corequisite(s): MAT 120 (concurrent)

PHYS 104 – Physics for Engineering Design & Drafting TechnolMastery:I am able to demonstrate it well enough to teach it to someCompetent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	ology eone else.	Mastery	Competent	Functional	Learning	None
1. Apply principles of computation.						
2. Apply methods of vector operations using trigonometry.						
3. Compare Newton's first and third laws involving static force problems.						
 Demonstrate Newton's second law involving force and friction problems. 	on					
5. Experiment with constantly accelerated motion to determine frictional coefficients between an object and its surface.	9					
6. Contrast work, power and energy conservation.						
7. Examine momentum vector conservation.						
8. Examine the laws of static fluids.						
9. Examine the laws of dynamic fluid flow.						

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PLAR assessment methods

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Resources

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PHYS 105 – Physics

Your studies will focus on solving certain physics problems using computational software. You will study vectors, translational and circular motion, work, energy and power, electric forces, electric fields and electric potential and magnetism.

Credit unit(s): 3.0 Equivalent course(s): PHYS 121

PHYS 105 – Mastery: Competent: Functional: Learning: None:	PhysicsI am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply ca features						
2. Solve pro	2. Solve problems of vector addition.					
3. Solve pro	blems involving motion.					
4. Solve pro	4. Solve problems involving work, energy and power.					
5. Solve pro magnetis	blems involving electric forces, potentials and fields and m.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 120 – Physics 1

You will study the principles of fluid mechanics, thermometry and calorimetry, thermal properties of matter and vector addition.

Credit unit(s): 3.0

PHYS 120 – Mastery: Competent: Functional: Learning: None:	Physics 1I am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use knov	1. Use knowledge of fluids at rest to analyze various situations.					
2. Solve pro	2. Solve problems involving fluids in motion.					
3. Perform	3. Perform vector analysis in one and two dimensions.					
4. Relate th	e change in temperature to expansion.					
5. Quantify	the gain or loss of heat.					
6. Calculate the loss or gain of heat due to convection, conduction and radiation.						
7. Examine	ideal gas properties in static and dynamic conditions.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 184 – Physics

You will be introduced to physics concepts applicable to the principles of operating x-ray generating equipment, image formation, and radiation protection.

Credit unit(s): 3.0

PHYS 184 – Mastery: Competent: Functional: Learning: None:	PhysicsI am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply el operatio	ectrical and electromagnetic principles to x-ray generator n.					
2. Relate the electrom	ne properties of x-rays to electromagnetic radiation and the agnetic spectrum.					
3. Discuss characte	 Discuss the process of x-ray generation in the x-ray tube and the characteristics of the resultant beam. 					
4. Relate th manipula	the theory of x-ray interactions with matter to exposure ation, image formation and radiation protection.					
5. Relate the measure	ne properties of x-radiation to the detection and ment of radiation.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 187 – Physics

You will be provided with an introduction to physics. Your studies will focus on optics, nucleonics and electricity. You will receive an overview of the behaviour of light, geometrical optics, wave optics and optical instruments (including lasers and fibre optics). You will receive an introduction to the fundamental concept of radioactivity, rates of decay, nuclear reactions and radiation measurement. You will also study direct current measurements and circuitry, alternating current, transformer theory, rectification and filtering. In the laboratory experiments you will use problem solving as an integral part of the course.

Credit unit(s): 4.0 Equivalent Course(s): PHYS 182 Prerequisite(s): MATH 189

PHYS 187 – Mastery: Competent: Functional: Learning: None:	Physics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Explain u and beha	1. Explain using qualitative and quantitative methodology the nature and behavior of light.					
2. Analyze t	2. Analyze the images formed by mirrors and lenses.					
3. Examine	the properties of light based on wave optics.					
4. Outline th	ne theory and application of optical instruments.					
5. Summariz	e electric charge, forces, electric potential, and fields.					
6. Interpret	electric circuits using Ohm's law.					
7. Explain th	7. Explain the relationship between electricity and magnetism.					
8. Summariz	te the generation and properties of alternating current.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

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PHYS 200 – Physics 2 for Geomatics

You will be introduced to basic concepts in gravity, light, optics and images that are relevant to applications in Geomatics. Some emphasis will be placed on calculation management and scientific documentation.

Credit unit(s): 3.0 Prerequisite(s): MAT 120, PHYS 103

PHYS 200 – Mastery: Competent: Functional: Learning: None:	 Physics 2 for Geomatics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Apply ba	sic concepts and principles of physics of light.					
2. Apply ge	2. Apply geometric and physical concepts of optics.					
3. Apply bas						
4. Apply Ne	wton's Universal law of gravitation within Geomatics.					

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PLAR assessment methods

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Resources

PHYS 222 – Physics 2

You will become familiar with magnetism, thermometry and calorimetry, the first and second laws of thermodynamics, linear and curvilinear motion, impulse and momentum, uniform circular motion, simple harmonic motion, waves and sound, and elasticity.

Credit unit(s): 3.0 Equivalent course(s): PHYS 225 Prerequisite(s): PHYS 121

PHYS 222 – P Mastery: Competent: Functional: Learning: None:	hysics 2 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Solve prob	lems relating to magnetism and electromagnetism.					
2. Solve prob	lems relating to temperature and expansion of materials.					
3. Solve prob	lems relating to the quantity of heat.					
4. Solve problems relating to the transfer of heat.						
5. Solve prob	lems relating to thermodynamics.					
6. Solve prob	lems relating to rectilinear and projectile motion.					
7. Solve prob	lems relating to impulse and momentum.					
8. Solve prob	lems relating to uniform circular motion.					
9. Solve prob	lems relating to elasticity.					
10. Solve prob	lems involving simple harmonic motion.					
11. Solve prob						
12. Solve prob	lems involving sound.					

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PLAR assessment methods

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Resources

PHYS 225 – Physics 3

You will examine uniform circular motion, rotation of rigid bodies, simple machines, simple harmonic motion, wave motion, elasticity, reflection and refraction of light.

Credit unit(s): 2.0 Corequisite(s): MAT 229 Prerequisite(s): MAT 221, PHYS 221

PHYS 225 – Mastery: Competent: Functional: Learning: None:	Physics 3I am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Assess u	niform circular motion.					
2. Examine	2. Examine the seven simple machines.					
3. Analyze s						
4. Apply pri	nciples of wave motion.					
5. Predict the deformation a body experiences while under mechanical stress.						
6. Analyze l	ight and light reflection.					
7. Determin	e conditions required to transmit data over fibre optics.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

PHYS 227 – Physics: Statics & Strength of Materials

Your studies will focus on the basic principles of statics (including the concepts of vectors, forces and equilibrium in two dimensions) and properties of materials (including stress and strain, elasticity and other mechanical properties). The course concludes with a study of centroids and moments of inertia of cross-sections of structural members.

Credit unit(s): 3.0 Equivalent course(s): SCAL 122 Prerequisite(s): MATH 115

PH Ma Cor Fur Lea No	YS 227 - Physics: Statics & Strength of Materialsstery:I am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1.	Use significant figures, SI units and Imperial units in the manipulation of numerical data.					
2.	2. Solve problems involving equilibrium of rigid bodies.					
3. Determine loadings applied to structures.						
4.	Solve problems involving normal stress and strain and/or shear stress and strain.					
5.	From a stress-strain diagram or numerical data, determine quantities relating to mechanical properties of materials such as yield strength, elastic limit and ultimate strength.					
6.	Determine the centroid, moment of inertia and radius of gyration of a simple or composite structural section.					

PLAR consultant for this course

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PLAR assessment methods

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Resources

PRNT 100 – Blueprint Reading

The course content includes reading and interpreting blueprints.

Credit unit(s): 1.0

PRNT 100 – Bl Mastery: Competent: Functional: Learning: None:	 ueprint Reading I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competen	Functional	Learning	None
1. Interpret features in all views.						
2. Identify required dimensions in all views.						
3. Interpret tolerances.						
4. Plan jobs.						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

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1. Challenge exam

- The exam consists of 7 work sheets from: Blue Print Reading for the Machine Trades 6th ed.
- 90 minutes to complete the exam

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Machine Tool Practice. Eighth Edition.

PRNT 101 – Blueprint Interpretation

Your studies in print reading will include: views, line types, types of drawings and basic welding symbols. You will practice basic drawing interpretation skills.

Credit unit(s): 5.0 Equivalent Course(s): PRNT 184

PRNT 101 – Mastery: Competent: Functional: Learning: None:	Blueprint Interpretation I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Describe	1. Describe elements of drawings.					
2. Describe types of prints and print format.						
3. Describe dimensioning formats.						
4. Describe types of joints and welds.						
5. Describe elements of basic welding symbols.						
6. Interpret fillet welding symbols.						
7. Interpret	7. Interpret groove weld symbols.					
8. Interpret	8. Interpret basic shop drawings.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

STAT 100 – Introductory Statistics

You will learn statistical methods of analysis and inference including descriptive measures, frequency distributions, probability, confidence intervals, hypothesis testing for population means and proportions, analysis of variance, as well as correlation and regression techniques.

Credit unit(s): 3.0

STAT 100 – J Mastery: Competent: Functional: Learning: None:	Introductory Statistics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Calculate						
2. Calculate probabilities.						
3. Examine probability distributions.						
4. Calculate confidence intervals.						
5. Conduct hypothesis testing.						
6. Use non-parametric data in hypothesis testing.						
7. Conduct linear regression analysis.						

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. Please call the Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to that person.

PLAR assessment methods

PLAR assessment for this course may be available upon request. If your results for the selfaudit above are positive, please contact the consultant for more information. Please do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

Please ask the PLAR consultant to recommend any useful resources to prepare for assessment. Also, check for related resources from online and other sources. Purchasing resources for this course from the Saskatchewan Polytechnic Bookstore is optional.

STAT 120 – Business Statistics

You will be introduced to the elements of statistics used in business. The course content includes frequency distribution, measure of central tendency and dispersion, probability distributions (discrete and continuous), sampling, sampling distributions, estimations, regressions, correlation and elementary hypothesis-testing.

Credit unit(s): 4.0 Equivalent course(s): ACP 374

STAT 120 – Business StatisticsMastery:I am able to demonstrate it well enough to teach it to someone else.Competent:I can work independently to apply the outcome.Functional:I need some assistance in using the outcome.Learning:I am developing skills and knowledge for this area.None:I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use statistical terminology and procedures.					
2. Diagram appropriate tables and graphical charts for organizing and presenting data.					
3. Calculate averages for summarizing data.					
4. Calculate the standard deviation and variance measures for finding data variability.					
5. Calculate data location, ranges, and shape.					
6. Analyze fundamental concepts and symbolism of probability.					
7. Calculate revised probabilities.					
8. Examine probability distributions.					
9. Apply the Central Limit Theorem (bell curve) to simple experimental design.					
10. Construct confidence intervals for a population mean and proportion involving large and small samples.					
11. Construct hypothesis testing.					
12. Analyze paired data using the Linear Regression method with correlation analysis.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources
STAT 201 – Statistics for Construction Engineering Technologies

Your studies will focus on the concepts and computations of statistics within the technical world in this technology statistics course. Statistical thinking and communicating will be emphasized. You will use mathematical methods and notations to gain a general understanding of statistical terminology, skills and methods. The course consists of three basic and building parts - an introduction to descriptive statistics (by organization and presentation techniques using tables and graphs), probability theory (presented as the link between descriptive and inferential statistics) and inferential statistics (by way of technical and business applications based on simple random sampling, confidence intervals, hypotheses testing and regression-correlation analysis).

Credit unit(s): 3.0 Equivalent course(s): MAT 233, STAT 120 Prerequisite(s): MAT 101

STAT 201 – St Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use funda	mental elements for describing and displaying data.					
2. Analyze av	verages for central and dispersion tendencies.					
3. Apply basi	c probability laws.					
4. Calculate d	discrete probability of binomial data.					
5. Calculate continuous probability of normal data.						
6. Apply the	Central Limit Theorem.					
7. Construct	probability sampling distributions.					
8. Construct	estimation intervals for mean and proportion					
9. Construct	hypothesis of testing for single mean and proportion.					
10. Construct proportion	hypothesis of testing for difference of means and s.					
11. Analyze pa	ired data using linear regression and correlation analysis.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

STAT 202 – Statistics for Health Sciences

You will learn statistical methods of analysis and inference including descriptive measures, frequency distributions, probability, confidence intervals, hypothesis testing, analysis of variance, and correlation and regression techniques. You will examine statistical applications, with problems chosen from the health sciences field.

Credit unit(s): 3.0

STAT 202 – Sta Mastery: Competent: Functional: Learning: None:	atistics for Health SciencesI am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competen	Functional	Learning	None
1. Calculate	descriptive statistics.					
2. Calculate	probabilities.					
3. Examine p	probability distributions.					
4. Calculate confidence intervals.						
5. Conduct h	hypothesis testing.					
6. Use non-p	parametric data in hypothesis testing.					
7. Conduct l	inear regression analysis.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

If your results for the self-audit above are positive, contact the appropriate consultant for more information. If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

Challenge exam

- 70 Marks in total
- Time allowed 90 minutes
- Ten problem solving questions four of these questions have multiple parts
- Students are allowed to use an approved statistical calculator
- A formula sheet and tables are included in the exam

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Saskatchewan Polytechnic (Current). *Statistics for Health Sciences – STAT 202* Course Manual. Regina, SK: Saskatchewan Polytechnic Regina Campus.

Triola, Mario F. et al. (Current). *Elementary Statistics* (3rd Can. Ed.). Pearson Canada. Texas Instrument TI-30XA calculator.

STAT 220 – Statistics for Geomatics

You will be introduced to basic statistics and probability as required in surveying computations. This course briefly covers some inferential statistics of estimation and testing, and regression and correlation analysis.

Credit unit(s): 3.0 Prerequisite(s): MAT 120

STAT 220 – S Mastery: Competent: Functional: Learning: None:	Statistics for Geomatics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Interpret	statistical distributions.					
2. Analyze s	tatistical measures.					
3. Apply bas	sic probability rules.					
4. Apply pro	bability distributions.					
5. Analyze t	he Central Limit theorem.					
6. Formulat	e for the estimation and hypothesis testing of population ers.					
7. Apply the paired da	e linear regression model and the correlation coefficient for ta analysis.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Moose Jaw**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

STAT 260 – Statistics for Health Sciences

You will learn statistical methods of analysis and inference including descriptive measures, frequency distributions, probability, confidence intervals, hypothesis testing, analysis of variance, and correlation and regression techniques. The emphasis in this course is on statistical applications, with problems chosen from the health sciences field.

Credit unit(s): 4.0 Equivalent course(s): STAT 190

STAT 260 – S Mastery: Competent: Functional: Learning: None:	Statistics for Health Sciences I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Calculate	descriptive statistics.					
2. Calculate	probabilities.					
3. Examine	probability distributions					
4. Calculate	confidence intervals.					
5. Conduct a	a hypothesis testing.					
6. Use non-	parametric data in hypothesis testing.					
7. Conduct	inear regression analysis.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences in **Regina**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

If your results for the self-audit above are positive, contact the appropriate consultant for more information. If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

1. Challenge exam

- 70 marks in total, time allowed 90 minutes.
- 10 problem solving questions. Four of these questions have multiple parts.
- Students are allowed to use an approved statistical calculator.
- A formula sheet and tables are included in the exam.

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Statistics (2014). *STAT 260 – Statistics for Health Sciences* [Course Manual]. Regina, SK: Saskatchewan Polytechnic Regina Campus.

Triola, Mario F. et al. (2011). *Elementary Statistics* (3rd Can. Ed.). Pearson Canada.

Texas Instrument TI-30-XA calculator

STAT 285 – Introductory Statistics

You will be introduced to basic statistical methods and the use of calculators and computers in solving statistical problems. Statistical applications relevant to the Veterinary Technology Program will be emphasized.

Credit unit(s): 2.0 Prerequisite(s): COMP 172

STAT 285 – 1 Mastery: Competent: Functional: Learning: None:	Introductory Statistics I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Apply the environm	e principles of descriptive statistics in a veterinary medical nent.					
2. Apply bas related to	sic statistics on population and probability distributions oveterinary technology.					
3. Use linea	r regression analysis.					
4. Use com	puter spreadsheets to perform statistical computations.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

THER 182 – Thermodynamics 1

You will receive an introduction to the field of thermodynamics. You will learn the quantities, units and principles involved in elementary thermodynamics.

Credit unit(s): 2.0 Equivalent course(s): PHYS 224

THER 182 – Th Mastery: Competent: Functional: Learning: None:	I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Explain th	e basic principles of thermodynamics.					
2. Explain the thermodynamics of steam.						
3. Solve thermodynamic problems.						
4. Discuss th	ne basic concepts of matter.					

PLAR consultant for this course

The PLAR consultants for this course are the Department Heads, Arts and Sciences, in **Saskatoon** and **Regina**. To arrange a consultation, check the name and location of the program for which you want this course credit. Then call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask to be transferred to the consultant at that location.

PLAR assessment methods

If your results for the self-audit above are positive, contact the appropriate consultant for more information. If you qualify for PLAR, you may be asked to demonstrate your learning in one or more of the following ways. Do <u>not</u> prepare for assessment until the Department Head has signed your PLAR application form and you have registered to PLAR this course.

1. Challenge exam

 This test is 27 multiple choice questions. Percentage of questions per learning outcome is LO1 - 37%, LO2 - 15%, LO3 - 41%, LO4 - 7%

Example:

The amount of energy required to convert 20 kg of water at 20°C to saturated steam at a pressure of 650 kPa is

a) 2676 kJ b) 2760 kJ **c) 53 527 kJ** d) 55 206 kJ

Correct answer is bolded

Resources

If you qualify to PLAR this course, ask the consultant to recommend any useful learning materials to review prior to assessment, which may include the following. Check for related resources from online and other sources. Purchasing resources from the Sask Polytech Bookstore is optional.

Pan Global Fourth Class, Part A, Volume 1, Chapters 18-20, Southern Alberta Institute of Technology, Pearson Custom Publishing, Boston MA, 2003

www.powerengineering.ca

Academic supplement, *Power Engineering*, (Steam tables, Refrigeration Table, & Handbook of Formulae & Constants) 2005 edition.

THER 281 – Thermodynamics 2

Your studies will focus on the theory and calculations related to boiler operation and efficiency. The course content includes calculations using steam tables, gas laws, equivalent evaporation, factor of evaporation, mixtures and thermal expansion.

Credit unit(s): 3.0 Prerequisite(s): THER 182

THER 281 – Mastery: Competent: Functional: Learning: None:	Thermodynamics 2I am able to demonstrate it well enough to teach it to someone else.I can work independently to apply the outcome.I need some assistance in using the outcome.I am developing skills and knowledge for this area.I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Perform tests.	heat calculations during changes of state and calorimeter					
2. Perform thermal expansion and heat transfer calculations.						
3. Perform	intermediate calculations involving steam properties.					
4. Perform compres	intermediate calculations involving the expansion and sion of gases.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

THER 282 – Thermodynamics 3

Your studies will focus on the theory and calculations related to boiler operation and efficiency. The course content includes calculations using steam tables, gas laws, equivalent evaporation, factor of evaporation, mixtures and thermal expansion.

Credit unit(s): 5.0 Prerequisite(s): THER 281

THER 282 – [•] Mastery: Competent: Functional: Learning: None:	 Thermodynamics 3 I am able to demonstrate it well enough to teach it to someone else. I can work independently to apply the outcome. I need some assistance in using the outcome. I am developing skills and knowledge for this area. I have no experience with the outcome. 	Mastery	Competent	Functional	Learning	None
1. Describe gas mixtu	the effect of work and heat transfer on perfect gases and ures.					
2. Perform a compress	advanced calculations related to expansion and sion of perfect gases.					
3. Explain the entropy of the entrop	ne principles and use of calorimeters and temperature- liagrams.					
4. Perform a	advanced calculations related to properties of steam.					
5. Explain th pressure-	ne concepts and use of thermodynamic cycles using volume and temperature-entropy diagrams.					
6. Perform t	hermal efficiency and heat balance calculations.					

PLAR consultant for this course

The PLAR consultant for this course is the Department Head, Arts and Sciences, in **Saskatoon**. To arrange a PLAR consultation, call the Sask Polytech Contact Centre toll-free at 1-866-467-4278 and ask for that person.

PLAR assessment methods

PLAR assessment for this course <u>may</u> be under development. If your self-audit results are positive, contact the consultant listed above for more information. Do <u>not</u> prepare for assessment until instructions are clarified at a consultation meeting, your PLAR application form is complete, and you have registered to PLAR this course.

Resources

Department of Arts & Sciences

Appendices

Appendix A: Employment validation letter

Employment validation letter

Prior Learning Assessment and Recognition

Instructions: The employment validation letter provides a statement of verification of relevant industry employment; the employer may be specifically required to verify that the PLAR candidate is the writer of/has produced the workplace documents/samples in the PLAR evidence file and that the PLAR candidate has successfully completed an employment interview. The employment validation letter must be printed on letterhead of your current employer and signed by the human resources department indicating the length of employment and working environment(s). A letter template has been provided for your use. Please copy the content below and fill in the fields as directed. The completed letter should be included with your PLAR evidence and submitted to the PLAR assessor.

Letter template (On employer's business letterhead)

Date

To Whom It May Concern:

I have reviewed the employment records of		and
. ,	Name of employee/candidate	-
can verify that the above candidate has been e	mployed by	
7	Name of employer	
for .		

Length of employment

I verify that the candidate is the writer of or has produced the workplace documents/work samples included in the PLAR evidence file. I further verify that the PLAR candidate has completed a successful employment interview with our organization.

Please contact me at _____ or _____ Phone _____ email

with any questions or for additional information.

Sincerely,

Name

Job title

Signature