Course Code, Name & Section

PECO 3100, Applied Science & 3A1

4 credits, 4 weeks and 3 days,

Instructor

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780-791-4955

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Office Hours

Monday to Friday 08:30 – 16:00

Delivery Method(s):

In-person – offered in person (face-to-face) on campus.

Hours of Instruction & Location

Day	Time	Location
Monday - Friday	09:00-16:00	Room # CC123

Required Resources

Power Engineering Third Class, PanGlobal, 3

Supplemental Resources

- Academic Supplement, PanGlobal, 2
- 2018 ASME Academic Extract Boiler and Pressure Vessel Code Volume 1, PanGlobal
- 2018 ASME Academic Extract Boiler and Pressure Vessel Code Volume 2, PanGlobal
- Power Engineers Regulation
- Safety Codes Act Pressure Equipment Safety Regulations

- CSA B51 – Code for the Construction and Inspection of Boilers and Pressure Vessels
- CSA B52 – Mechanical Refrigeration Code
- Laptop
- Calculator (non programable)

Assessment Details and Dates

Assessment	Weighting	Course Learning Outcome
Chapter and Unit Quizzes	10%	CLO1 Solve problems using algebraic operations, including equations and logarithms. CLO2 Explain trigonometric concepts and solve problems involving trigonometry CLO3 Solve problems involving the areas of plane figures and the surface areas and volumes of three-dimensional objects. CLO4 Explain concepts and solve problems involving vectors, force systems and friction. CLO5 Explain concepts and solve problems involving velocity and acceleration, the Laws of Motion and work, power, energy. CLO6 Explain concepts and solve problems involving material stresses and bending of beams. CLO7 Explain concepts and solve problems involving simple machines and fluids. CLO8 Explain terminology regarding heat and perform heat calculations during changes of state and calorimeter tests. CLO09 Explain concepts and perform calculations involving the thermal expansions of solids and liquids and heat transfer by conduction. CLO10 Define properties of saturated and superheated steam and, using information from the steam tables, calculate the heat required to produce steam at various conditions; determine the equivalent and factor of evaporation for steam boilers. CLO11 Explain the laws of perfect gases and perform calculations involving the expansion and compression of gases CLO12 Explain the fundamental principles in the structure, formation and interaction of chemical compounds and the importance of chemistry in industrial operations. CLO13 Explain the production, properties and applications of metallic and non-metallic materials

		CLO14 Explain the mechanisms that cause corrosion and the methods used to monitor and control corrosion. CLO15 Identify and interpret components of typical engineered drawings used in industry.
Section Test 1	20%	CLO1 to CLO7
Section Test 2	20%	CLO8 to CLO15
E1 – Final Exam	50%	CLO1 to CLO15
Total Theory Component	100%	3A2

Proposed Course Schedule

Week & mode of delivery	Topic(s), Activities, Readings	Graded Assessments (%)	Tentative Due Dates
Week 1: August 26 2024 To August 26 2024 FTF session	3A1 Chapters 1 to 4 • Chapter 1:Solve problems using algebraic operations, including equations and logarithms. • Chapter 2: Explain trigonometric concepts and solve problems involving trigonometry • Chapter 3: Solve problems involving the areas of plane figures and the surface areas and volumes of three-dimensional objects. • Chapter 4 Explain concepts and solve problems involving vectors, force systems and friction.	Students must achieve a minimum of 80% or higher on each chapter and unit quiz	September 09, 2024
Week 2: September 03, 2024 To September 06, 2024 F2F session	3A2 Chapters 5 to 7 • Chapter 5: Explain concepts and solve problems involving velocity and acceleration, the Laws of Motion and work, power, energy. • Chapter 6: Explain concepts and solve problems involving material stresses and bending of beams. • Chapter 7: Explain concepts and solve problems involving simple machines and fluids.	Students must achieve a minimum of 80% or higher on each chapter and unit quiz	September 09, 2024

Week 3: September 19, 2024, To September 16, 2024 F2F session	3A1 Chapter 8 to 11: Chapter 08: Explain terminology regarding heat and perform heat calculations during changes of state and calorimeter tests. Chapter 09: Explain concepts and perform calculations involving the thermal expansions of solids and liquids and heat transfer by conduction. Chapter 10: Define properties of saturated and superheated steam and, using information from the steam tables, calculate the heat required to produce steam at various conditions; determine the equivalent and factor of evaporation for steam boilers. Chapter 12: Explain the laws of perfect gases and perform calculations involving the expansion and compression of gases •	Students must achieve a minimum of 80% or higher on each chapter and unit quiz	September 24, 2024 (Chapter 8 to 11)
Week 4: September 16, 2024 September 20, 2024 F2F session	3A1 Chapter 12 to 15: CLO12 Explain the fundamental principles in the structure, formation and interaction of chemical compounds and the importance of chemistry in industrial operations. CLO13 Explain the production, properties and applications of metallic and non-metallic materials CLO14 Explain the mechanisms that cause corrosion and the methods used to monitor and control corrosion. CLO15 Identify and interpret components of typical engineered drawings used in industry.	Students must achieve a minimum of 80% or higher on each chapter and unit quiz	September 24, 2024

Please Note:

- The date and time allotted to each topic are subject to change.
- Students will have access to their Moodle course shells for 15 days following completion of their course.
- Every effort has been made to ensure that the information in this course syllabus is accurate at the time of publication. Keyano College reserves the right to change the course syllabus content if it becomes necessary so that course content remains relevant. Any changes to the course syllabus during the semester will be communicated to students in writing by the instructor in a timely manner. A revised course syllabus will be posted to the LMS.
- A minimum GPA of 1.7 or higher is required for students to remain in good academic standing and progress to the next semester, unless otherwise indicated for a specific program.

Keyano Performance Requirements and Student Services

Student Responsibilities

As a student, it is your responsibility to contact the Office of the Registrar to complete the required forms, including the Withdrawal/Drop Form. All forms are available on the College website. Please refer to the important dates listed in the Academic Schedule in the Keyano College credit calendar and/or on the College website. It is the responsibility of each student to be aware of the guidelines outlined in the Student and Academic Policies.

Student Attendance

Class attendance is helpful for two reasons: First, class attendance maximizes a student's learning experience. Second, attending class is an excellent way to keep informed of matters relating to the course administration (e.g., the timing of assignments and exams). Ultimately, you are responsible for your learning and performance in this course. It is the responsibility of each student to be prepared for all classes. Absent students are responsible for the material covered in those classes, and students must ensure they are ready for their next class, including completing any missed assignments and notes.

ATTENDANCE
The Power Engineering program is considered an extension of the workplace in terms of attendance, punctuality, and conduct.

- Classes are scheduled from Monday to Friday 9:00 am – 4:00 pm.
- One hour lunch break from 12pm-1pm.

- Attendance will be taken twice a day.
- Students must personally notify the Power Engineering Department (powerprocess@keyano.ca) if they are unable to attend a scheduled class.
- It is expected that personal appointments will be made outside of scheduled class hours.
- Instructors do not grant excused absences without notification from health services. All doctors' notes to be submitted directly to healthservices@keyano.ca for assessment.
- It is expected that students will manage their time in accordance with the program schedule, policy and procedures and will attend and be punctual for all classes every day.

NOTE: Attendance records are submitted to potential employers.

Course Evaluation

Midterm exams and term work is to be completed at the time/date indicated in your course syllabus. It is the expectation of the College that students make every reasonable effort to complete all course evaluation, including, quizzes, midterms, and exams, as scheduled. In the event of an emergency, rescheduling of exams and/or extensions are only provided at the discretion of the course instructor. Students should contact the instructor as soon as they are able, to notify them of missing an evaluative component. Instructors will use discretion in deciding whether circumstances justify granting a reschedule and/or extension.

Regular term quizzes, midterms, and exams are not eligible for deferral and/or date extension accommodations. Students with accommodations, please refer to Accessibility Services.

Final Exams are subject to deferral processes, please refer to the current Keyano College Credit Calendar.

Academic Integrity & Misconduct

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. It is expected that students at Keyano College will adhere to these ethical values in all activities related to learning, teaching, research, and service. Any action that contravenes this standard, including misrepresentation, falsification, or deception, undermines the intention and worth of scholarly work and violates the fundamental academic rights of members of our community.

Academic dishonesty takes many forms:

- Plagiarism or the submission of another person's work as their own,
- The use of unauthorized aids in assignments or examinations (cheating),
- Using Artificial Intelligence (AI) to complete coursework (without instructor approval),
- Collusion or the unauthorized collaboration with others in preparing work,
- The deliberate misrepresentation of qualifications,
- The willful distortion of results or data,
- Substitution in an examination by another person,
- Submitting unchanged work for another assignment, and
- Breach of confidentiality.

In all academic work, the ideas and contributions of others must be appropriately acknowledged and work that is presented as original must be, in fact, original. Using an AI-content generator (such as ChatGPT) to complete coursework without proper attribution or authorization is a form of academic dishonesty. If you are unsure about whether something may be plagiarism or academic dishonesty, please contact your instructor to discuss the issue.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the *Student & Academic Policies* section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights, Academic Integrity, and Non-Academic Misconduct Policies.

To ensure your understanding of plagiarism and academic integrity, you are required to complete the online Understanding Academic Integrity tutorial (https://keyano.libwizard.com/f/academic-integrity-tutorial) and submit the certificate of completion to your instructor(s).

Online Learning

Technology and internet connectivity will impact your online learning experience. You may be required to watch online videos, take online quizzes, or participate in live online classes. Live/virtual courses will be hosted in Microsoft Teams or Zoom. For all course delivery types, you will access your course outline, course syllabus and course resources on Keyano's learning management system: Moodle (iLearn). Login in using your Keyano username and password. Keyano College operates in a Windows-based environment and having access to the correct tools for online learning is essential.

Computer System Requirements

Keyano College software are Windows based.

Minimum Requirements and Recommended Upgrades for Windows (preferred system) and Apple devices These minimum standards are required for a Windows computer/laptop (OS 10 or 11) and a MacIntosh (OS 10.14 or above).
1. Windows 10 Operating System or above. 2. 4GB of RAM. Recommended upgrade to 8GB of RAM. 3. 10GB+ available hard drive storage space. Note installing Microsoft Office 365 requires 3GB of available hard drive space.   a. Install the Microsoft Office 365 suite (~3GB) ***** 4. Microphone, webcam, and speakers (All modern laptops have these three accessories built-in). However, a headset or earbuds with a microphone is also recommended. 5. Windows has built-in anti-virus/malware software. It is essential to install system updates to keep your device secured regularly. *****Microsoft Office 365 is free to Keyano students.
Tablets, iPads, and Chromebooks are **not** recommended: They may not be compatible with your programs such as lockdown browsers used for assessments and/or Microsoft Office 365.

Computer Software

Students have access to Microsoft Office 365 and Read & Write for free using Keyano credentials.

See Recommended Technology for more information.

Recording of Lectures and Intellectual Property

Students may only record a lecture if explicit permission is provided by the instructor or Accessibility Services. Even if students have permission to record a lecture or lecture materials, students may not share, distribute, or publish any of the lectures or course materials; this includes any recordings, slides, instructor notes, etc., on any platform. Thus, no student is allowed to share, distribute, publish, or sell course-related content without permission. It is important to recognize that the Canadian Copyright Act contains provisions for intellectual property. The Academic Integrity Policy provides additional information on Keyano College's expectations from students as members of the intellectual community.

ITS Helpdesk

If you have issues with your student account, you can contact the ITS Helpdesk by emailing its.helpdesk@keyano.ca or calling 780-791-4965.

Specialized Supports

Keyano College is committed to Keyano students and their academic success. There is a variety of student support available at Keyano. All student services are available during Keyano business hours: Monday to Friday, 8:30 a.m. to 4:30 p.m. The College is closed on statutory holidays. If you require support outside of regular business hours, please inform the support service team, and they will do their best to accommodate your needs.

Accessibility Services provides accommodations for students living with disabilities. Students with documented disabilities or who suspect a disability can register to discuss their current learning barriers and possible accommodations. Students are required to request accommodations for each term. Please note that requesting accommodations is a process and requires time to arrange. Contact the department as soon as you know you may require accommodations to ensure timely implementation. For accessibility supports, adaptive technology, learning strategies and disability-based funding, please register with Accessibility Services by emailing wellness.services@keyano.ca, or visiting www.wellnessxp.net/wellness/**,** or scanning this qr code below.

Wellness Services offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators provide a safe and confidential environment for you to seek help with personal concerns. Our Wellness Navigator offers support with finding basic needs such as housing, financial and nutritional support, and outside referrals when needed. Wellness Services welcomes students to participate in group sessions that address topics including mindfulness and test anxiety throughout the academic year. Individual appointments can be made by emailing wellness.services@keyano.ca, or visiting www.wellnessxp.net/wellness/, or scanning this qr code below.

The **Library** provides students with research, information, and educational technology services and spaces as they engage in their studies. The Library is located at CC-166 or www.keyano.ca/library. Library staff are available to help students online and in person throughout the semester. Librarians offer individual and small group consultations booked using the online Book A Librarian calendar. The library also provides virtual research and subject guides to help you with your studies. Find the guide that supports your course-related research by viewing the complete list of online Subject Guides. To start your research and access citation guides (APA, MLA, Chicago, or IEEE), visit the Research Help page. The library's collections (including print and online materials) are searchable using EDS (EBSCO Discovery Service) on www.keyano.ca/library/find. The library offers a Loanable Technology collection to support students accessing and using technology. For an up-to-date list of technology available for borrowing, visit the library's Loanable Technology webpage. For a detailed list of library resources and services, go to www.keyano.ca/library. For all inquiries, please email askthelibrary@keyano.ca or chat with us online.

The **Academic Success Centre (ASC)** provides free academic support services to registered students, such as tutoring, writing support, facilitated study groups, workshops, and study space. Academic Content Specialists are available in Business, Mathematics, Science, English, Humanities, Power Engineering, Upgrading/College Prep, and more. Peer Tutors are available to provide peer academic support to students in all college programs, such as Nursing, Business, Education, Environmental Science, among others. Students are encouraged to visit the Academic Success Centre at CC-119 to discuss strategies for academic success. Specialists in the Academic Success Centre also work with students to develop academic success plans, time management skills, study strategies, and homework plans. For additional information, please email Academic.Success@keyano.ca

Work Integrated Learning (WIL) is located in the ASC in CC-119. Career Services WIL staff assist students with their program-related WIL and co-op placements, provide resume advice, and support with using the GradLeaders platform. Additionally, they coordinate several career fairs for students throughout the academic year and host coop and resume workshops for students. Students can reach WIL by emailing: WIL@keyano.ca or by visiting them in person.

Course Syllabus Template Version 1.0

Signatures & Date

Name of Instructor:

Instructor Signature: DocuSigned by: 52F1653ABA2B402...

Date: 9/24/2024

Name of Course Lead:

Course Lead Signature: _____

Date:

Name of Chairperson/Program Manager:

Chairperson/Program Manager Signature: DocuSigned by: Indika Arachchi 76BDC1D38181417...

Date: 9/24/2024