Course Outline

Faculty of Arts and Science

ENCMP 100
Computer Programming for Engineers
Winter, 2014

3 CREDITS
3+1.5 HOURS PER WEEK
3.8 Engineering Units (for U. Alberta)

INSTRUCTOR: Jean-Pierre De Villiers
INSTRUCTOR: Jean-Pierre De Villiers

PHONE NUMBER: (780) 791-4940

E-MAIL: Jean-Pierre.DeVilliers@keyano.ca

OFFICE NUMBER: S211B

OFFICE HOURS:
Monday 11:00-11:50
Tuesday 13:00-13:50
Wednesday 11:00-12:50
Friday 09:00-09:50

HOURS OF INSTRUCTION:
Monday 10:00 – 10:50 Room 239
Tuesday 09:00 – 09:50 Room 239
Thursday 11:00 – 11:50 Room 239
Friday 11:00 – 12:50 Room 239 (Lab)

PRE-REQUISITE(S)/CO-REQUISITE(S):

COURSE DESCRIPTION:
This course is an introduction to MATLAB with applications to engineering problems. Topics to be covered include an introduction to algorithmic problem solving, design methodologies, MATLAB language structure and syntax. Weekly laboratories offer students the opportunity to translate concepts presented in lectures into interesting application programs.

COURSE OUTCOMES:

1. Using MATLAB as a tool to solve engineering problems.
2. Developing modular MATLAB programs using user-defined functions.
3. Visualization of large sets of data using MATLAB plotting capabilities.
REQUIRED RESOURCES:

- Lecture/lab notebook
- USB storage device

TOPICS TO BE COVERED:

This course is very much a hands-on introduction to MATLAB. Students should be prepared for lectures and labs that mix formal instruction with practical exercises to be carried out individually (the labs) and collaboratively (in class exercises). Advanced preparation (e.g. reading the relevant chapters ahead of lectures) is strongly recommended.

Please Note:
This plan may be modified to facilitate unforeseen time constraints. Date and time allotted to each topic is subject to change. Not all sections in a chapter will necessarily be covered.

<table>
<thead>
<tr>
<th></th>
<th>Lectures</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>MATLAB basics: program structure, variables, data types</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Vectors and Matrices</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>MATLAB basics: scripts, I/O</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Selection Statements</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Repetition Statements and Vectorization</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>MATLAB programs</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Family Day; Midterm Review; Midterm</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>String Manipulation</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>Cell Arrays and Data Structures</td>
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<tr>
<td>10</td>
<td>9</td>
<td>Advanced Input/Output</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
<td>Advanced Functions and Plotting</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>Applications: Linear Algebra and Statics</td>
</tr>
<tr>
<td>13</td>
<td>15</td>
<td>Applications: Calculus</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>MATLAB Programming - Course Synthesis</td>
</tr>
</tbody>
</table>
iLearn

Go to [http://ilearn.keyano.ca](http://ilearn.keyano.ca)

This course is supported through iLearn. Readings and handouts will be posted on iLearn. Login information will be provided by your instructor. For further instructions please see the iLearn handout.

### EVALUATION:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>7.5%</td>
<td>Four quizzes through the term</td>
</tr>
<tr>
<td>Assignments</td>
<td>2.5%</td>
<td>Weekly, posted on iLearn</td>
</tr>
<tr>
<td>Labs</td>
<td>20%</td>
<td>Weekly, posted on iLearn (also, see below)</td>
</tr>
<tr>
<td>Midterm</td>
<td>25%</td>
<td>February 21, 2014</td>
</tr>
<tr>
<td>Final Examination</td>
<td>45%</td>
<td>Date TBA, in April</td>
</tr>
</tbody>
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### GRADING SYSTEM:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Description</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>A</td>
<td>Excellent</td>
<td>4</td>
</tr>
<tr>
<td>A-</td>
<td></td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>B-</td>
<td></td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td></td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>Satisfactory</td>
<td>2</td>
</tr>
<tr>
<td>C-</td>
<td></td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td></td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>Minimal Pass</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0</td>
</tr>
</tbody>
</table>

Students intending to transfer to other institutions require a 'C-' as a minimum grade. Transfer information on each course is available at the [Alberta Council on Admission and Transfers](http://www.acat.ca).

Students who do not complete all the required work should not expect to pass the course.
Students should consult:

http://www.keyano.ca/Academics/CreditCalendar
IMPORTANT DATES:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>January 17, 2014</td>
<td>Courses dropped after this date will be designated “W”. (A withdrawal (W) is not reflected in your GPA)</td>
</tr>
<tr>
<td>February 21, 2014</td>
<td>Mid-term examination</td>
</tr>
<tr>
<td>March 7, 2014</td>
<td>Courses dropped after this date will be designated “WF”. (A withdrawal failure (WF) counts as a 0 in your GPA)</td>
</tr>
<tr>
<td>April 17, 2014</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>April 22-30, 2014</td>
<td>Final Exams</td>
</tr>
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COLLEGE POLICIES

Equality, Equity and Respect
The Keyano College is committed to providing an environment of equality, equity and respect for all people within the College community. All members of this community are considered partners in developing teaching and learning contexts that are welcoming to all. Faculty, staff, and students are encouraged to use inclusive language to create a classroom atmosphere in which students' experiences and views are treated with equal respect and valued in relation to their gender, ethnic and cultural background, and sexual orientation.

Students should consult:
http://www.keyano.ca/StudentLife/StudentConduct/IndividualRightsPolicy

Plagiarism and Cheating
Every student expects to be treated and evaluated fairly in a course. Plagiarism and cheating robs everyone of this right.

No student may submit words, ideas or data of another student or person as his or her own in any writing, project, assignment, quiz, electronic presentation, exam etc. Any work used that is not the student’s own must be clearly cited as belonging to someone else. There are penalties for using other's work and not citing it. The Student's Rights & Responsibilities document clearly outlines these penalties and the appeal process.

• No learner can obtain information from another student during an exam.
• No learner can bring unauthorized information (paper or electronic) into an exam or quiz.
• No student can submit work done in another course for grading in this course without the written prior approval of the course instructor.
• No student can submit copyright protected or commercially produced materials as part or all of an assignment without proper citation & permission.

Student Rights & Responsibilities
Students should consult the Keyano College Credit Calendar or online at:
http://www.keyano.ca/StudentLife/StudentConduct/AcademicPoliciesProcedures
Specialized Supports and Duty to Accommodate
Disability Support Services: Learner Assistance Program
If you have a documented disability or you think that you would benefit from some assistance from a Disabilities Counsellor, please call or visit the Disability Supports Office 780-792-5608 to book an appointment (across from the library). Services and accommodations are intended to assist you in your program of study, while maintaining the academic standards of Keyano College. We can be of assistance to you in disclosing your disability to your instructor, providing accommodations, and supporting your overall success at Keyano College.

Specialized Supports and Duty to Accommodate
Specialized Support and Duty to Accommodate are aligned with the office of Disability Support Services: Learner Assistance Program (LAP) guided by federal and provincial human rights legislation, and defined by a number of Keyano College policies. Keyano College is obligated by legislation to provide disability-related accommodations to students with identified disabilities to the point of undue hardship.

COURSE-SPECIFIC POLICIES

iLearn and Lecture Notes
You are responsible for keeping a complete record of classroom work (lecture notes, interactive problems, classroom exercises) in a proper notebook. Lecture overheads, when used, are posted to iLearn at the end of each week and do not constitute a complete record of lecture materials.

Attendance Policy
You are expected to attend all lectures, tutorials, and laboratories without exception. Failure to do so may jeopardize your standing in the course; please consult the Keyano College Calendar, also available on-line at http://www.keyano.ca/Academics/CreditCalendar.

• Valid reasons for absences include illness, medical appointments, and family emergencies.
• You are expected to notify your instructor of your absence by email (preferred) or by telephone on or before the date of the absence; failure to do so will result in your absence being recorded as unexcused.
• You may be required to provide written proof justifying your absence at the instructor’s discretion. Such proof will be required to obtain an excused absence from a quiz, tutorial, lab or exam.

Assignments and Laboratory Work
Assignments are programming tasks related to current lecture materials; assignments are typically due one week after being assigned.

Labs are formal exercises begun in the weekly lab period. Lab reports are due at the end of the lab period unless otherwise stated.

Attendance to all labs is mandatory; unexcused absences or incomplete lab exercises may result in a failing grade for the course.

All lab work must be your own work; no collaborative work is permitted. Any attempt to
present another student’s work as your own, or to present material obtained from Internet resources will result in an **automatic failing grade for the course**.

Submissions of assignments and lab exercises are to be done electronically, via iLearn.

**Quizzes**

Quizzes will be given more or less every three weeks. Each quiz will last about 15 to 25 minutes. If a quiz is missed without a valid reason, a grade 0 will be assigned, and **may contribute to a failing grade in the course**.

**Plagiarism and Cheating**

**There is a zero tolerance policy for all forms of academic dishonesty.** Plagiarism of any kind, the use of illegal study aids, or the fabrication of experimental results will be dealt with according to Keyano College policy. Specifically for this course:

- **Cheating on assignments**: if you are suspected of having obtained assignment solutions through dishonest means, you will be required to convince your instructor that you are able to reproduce any solution on the given assignment; failure to do so will result, at minimum, in a grade of zero for the assignment.

- **Plagiarizing components of a lab assignment**: submitting plagiarized material for any portion of a lab assignment will result, at minimum, with a grade of zero for the lab report in question.

- **Cheating during an examination (including quizzes)** will result, at minimum, with a failing grade in the course

Repeat offenses will be penalized with, at minimum, a failing grade in the course.
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Winter, 2014

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3.8 Engineering Units (for U. Alberta)

Jean-Pierre De Villiers, Instructor
Date

Reviewed and approved by:

Louis Dingley, Chairperson
Date

Guy Harmer, Dean
Date

Thursday, December 19, 2013