1. **Course:** CPSC 359: Computing Machinery II  
   **Lecture Sections:**  
   L01, MW 15:30-16:45, ES 443, Jalal Kawash, ICCT 706, 220-6619, jkawash@ucalgary.ca  
   Office Hours: MW 12:00-13:00

   **Course Website:** website

   **Computer Science Department Office, ICT 602, 220-6015, cpsc@cpsc.ucalgary.ca**

2. **Prerequisites:** CPSC 355 and PHIL 279 or 377  
   (http://www.ucalgary.ca/pubs/calendar/current/computer-science.html#3620)

3. **Grading:** The University policy on grading and related matters is described in sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

   - Assignments 40%
   - Test 1 20%  
     *(In-Class Monday October 3rd, 2016 in ICT 122)*
   - Test 2 20%  
     *(In-Class Wednesday November 16th, 2016 in ICT 122)*
   - Final Exam 20%

   This course will have a Registrar’s Scheduled Final Exam.

   Special Regulations affecting Final grade: Each of the above components will be given a percentage grade. The final grade will be calculated weighted by the percentage given above and then reconverted to a final letter grade using the attached cutoffs. In order to obtain a final grade of C- or better, and to pass the class, a student must achieve a weighted overall average of C- or better in the Assignment components.

4. **Missed Components of Term Work:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar, Section 3.6. It is the student’s responsibility to familiarize theirself with these regulations. See also Section E.6 of the University calendar.

5. **Scheduled Out-of-Class Activities:** REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME ACTIVITY. If you have a clash with this out-of-class activity, please inform your instructor as soon as possible so that alternative assignments can be arranged.

6. **Course Materials:**
   None.

   **Online Course Components:**
   Lecture slides and notes will be available on D2L.

7. **Examination Policy:** Open book; any hard copy material is allowed. No electronic devices are allowed. Students should also read the Calendar, Section G, on examinations.

8. **Approved Mandatory and Optional Course Supplemental Fees:** Raspberry Pi
9. **Writing across the Curriculum Statement:** In this course, the quality of the student’s writing in the weighted components of the course will be a factor in the evaluation of these components. See also Section E.2 of the University Calendar.

10. **Human Studies Statement:** Students will be expected to participate as subjects or participants in projects. See also Section E.5 of the University Calendar.

11. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**

   a) **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offense that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under Section K, Student Misconduct to inform yourself of definitions, processes and penalties.

   b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points which can be found in each classroom and building.

   c) **Student Accommodations:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf. Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Computer Science.

   d) **Safewalk:** Campus Security will escort individuals day or night (http://www.ucalgary.ca/security/safewalk/). Call 403-220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

   e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information see also http://www.ucalgary.ca/secretariat/privacy

   f) **Student Union Information:** VP Academic (403) 220-3911 suvpaca@ucalgary.ca SU Faculty Rep (403) 220-3913 science1@su.ucalgary.ca science2@su.ucalgary.ca and science3@su.ucalgary.ca. Student Ombuds Office: (403) 220-6420 ombuds@ucalgary.ca, http://ucalgary.ca/provost/students/ombuds

   g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend your cell phone should be turned off unless instructed otherwise. All communications with other individuals via laptop computers, cell phones or other devices connectable to the internet in not allowed during class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

   h) **U.S.R.I.:** At the University of Calgary feedback provided by students through the Universal Student ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference – please participate in USRI surveys.

   **Department Approval__________________________________________Date__________________________**

   **Associate Dean’s Approval for**
   **out of regular class-time activity: ________________________________Date:______________________**

   **Associate Dean’s Approval for**
   **Alternate final examination arrangements:________________________Date:______________________**

   *A signed copy of this document is kept on file in the Computer Science main Office ICT 602*
### CPSC 359 Percentage to Letter Grade Conversion Table

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>A+</td>
<td>95-100</td>
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<tr>
<td>A</td>
<td>90-94</td>
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<tr>
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<td>80-84</td>
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<tr>
<td>B</td>
<td>75-79</td>
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<tr>
<td>B-</td>
<td>70-74</td>
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<td>C+</td>
<td>65-69</td>
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<td>C-</td>
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<td>D+</td>
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<tr>
<td>D</td>
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<tr>
<td>F</td>
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Tentative Topics Covered:

Boolean operations and Boolean gates
Boolean functions
Canonical forms and gate-level minimization
K-Maps
Combinational circuits
Sequential circuits

ARM architecture and the Raspberry Pi
ARM assembly programming
UART: Universal Asynchronous Receiver Transmitter protocol
GPIO: General Purpose Input/Output
SNES controller: Super Nintendo Entertainment System controller
Interrupts & Exceptions
Video Programming

Java byte code (Java assembly)
IJVM data path
IJVM microprogram

Learning Outcomes:

By the end of the course: students will:
- Write low-level programs that control hardware devices using various processor-device communication protocols.
- Design a microarchitecture layer by developing a microgram that controls the processor’s data path.
- Design and implement interrupt-driven systems.
- Design and simulate digital computing devices using digital logic.
- Design and implement device drivers.