Programming Fundamentals
(CS 1002)

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1. Contact Information

About me:

- Mudassar Aslam
  - **Ph.D.** from Malardalen University, Sweden (2014),
  - **Specialization**: *Cloud Security*

Contact Information:

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2. Course Consultation

Consultation Hours:

🕐 Schedule and Office Hours (Fall-2022)						
Days	8:30 AM 09:50 AM	10:00 AM 11:20 AM	11:30 AM 12:50 AM	13:00 AM 14:20 PM	14:30 PM 15:50 PM	18:45 PM 20:05 PM
Monday	PF (CY-A)	PF (CY-B)				
Tuesday				Office Hour	Office Hour	Cloud Computing
Wednesday	PF (CY-A)	PF (CY-B)				
Thursday				Office Hour	Office Hour	Cloud Computing
Friday						

3. Class Policies and Guidelines

- **Attendance policy** : marking at the **start of the lecture**

- **Plagiarism policy**: as per outline

  - Use of cell phones
  - Discussion with fellows during class (unless needed for some announced task)
  - Early leave (will result in absent)
  - Frequent movement In-out during class

  - Be **interactive**, **ask questions**
  - **Participate in** the **lecture**
  - **Relax** and **learn** ☺

4. Course Coordination (Google Classroom)

- Lecture slides and other material will be shared on **Google classroom**

- The class code is: gxyjlih

- URL:
https://classroom.google.com/c/NTM5MjI5MjkzMzIw?cjc=gxyjlih

- Google Classroom Walkthrough (organization, material, access, …)

Tasks: Class/Homework

- Join **Google classroom (code:** gxyjlih**)**
- On Laptop:
  - Install Google Drive for Desktop https://www.google.com/drive/download/
- Google Classroom Walkthrough
- Make sure that "All PF material" folder is synced with your computer storage
  - GCR: Click on the folder link from GCR (now its accessible to you)
  - Google Drive Web: Locate the folder in "Shared with me" tab.
  - Google Drive Web: Make a shortcut of this folder in your path My Drive->Classroom-> PF-CY-Fall2022 A & B
  - Laptop: Go to My Drive->Classroom-> PF-CY-Fall2022 A & B
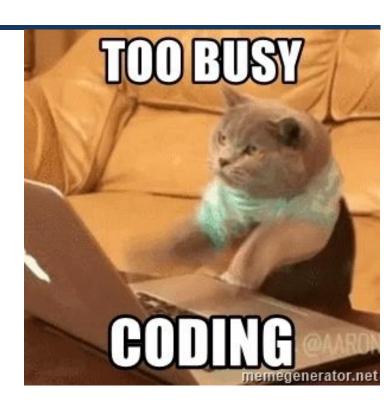 - Right Click on "Student Resources - All PF Course Material" and Make it available offline.

What is this Course About ?

- Its about **knowing computers**

- **Programming** them.

- **Assumptions**: *no prior knowledge of programming*

5. Detailed Course Contents (1/2)

List of Topics	No. of Weeks	Contact Hours
- Problem-solving, Basic flowchart, block diagram, and programming languages. - Primitive data types, input/output (hello world). - Signed and unsigned data types, constants and variables.	1	3
- Arithmetic operators (+, -, *, /, % and their compound counterparts) with their associativity and precedence. - Bit wise operators	2	6
- Function prototypes, definition, and calling.	1	3
- Conditional/selection structures. - Comparison and logical operators. - if, if. . .else and if else if structure. - Switch statement, *break* statement. - Ternary operator.	2	6
- Repetition structures. - Pre/post increment/decrement operators. - while loop (sentinels + condition). - Loop with *for*. - Loop with *do-while*. - Nesting of *while*, *for* loop and *continue* statement.	3	9

- Introduction to Arrays. - Array initialization and representation. - Char arrays. - Multi-Dimensional Arrays (MDA). - MDA representation in memory.	1.33	4
- Aliases, parameters passing by value and by reference (passing arrays). - Function calling order and stack (function within a function). - Recursion	1.66	5
- Header files (creating own file). - Files handling - Opening flags (app mode).	1	3
- Pointers. - const. vs. non-const. pointers, a pointer to const. data vs. a pointer to non-constant data. - Using pointers. - Dynamic memory allocation. - Array of pointers.	2	6
Total	15	45

After this course

6. Grading Policy

Grading policy: Absolute grading

Assessment Item	Weight (%)
Assignments (5)	15
Quizzes (5)	10
Sessional Exams (2)	25
Project	10
Final Exam	40

7. Retake Policy

- **Retake** of **missed assessment items** (other than **midterm/ final exam**) will not be held (**no retake of assignment/quiz/project**).

  - **Late submission will be accepted (until certain time) with marks deductions**.

- For a missed midterm/ final exam, an exam retake/ pretake application along with necessary evidence are required to be submitted to the department secretary. The examination assessment and retake committee decides the exam retake/ pretake cases.

8. Plagiarism Policy

- Plagiarism in any assessment item will result **zero marks** in that assessment.

- Repeated case of plagiarism will be reported to the disciplinary committee and may result in zero marks **in the whole category**.

- If plagiarism is detected, student will have **1 week** from the date of announcement to defend the charges
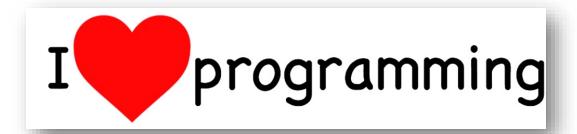
9. Course Learning Outcomes (CLOs)

After completion of the course, the students shall be able to:

1. **Understand** basic **problem-solving steps** and **logic construct**s.

2. **Apply** basic **programming concepts**.

3. **Design** and **implement** algorithms to **solve real-world problems**.

10. Course Aims/Objectives

- To **equip students** with the **basic computing concepts**

- To provide them the ability to **analyze** the given **requirements** for **solving problems** in different domain

- To **train students** for **implementing** the **solutions** (**C++** programming language) on a **computer system**.

11. Text & Reference Books

- **Text Book:**

   Tony Gaddis "STARTING OUT WITH C++" 9th Edition

- **Reference Books:**
  - Paul Deitel, Harvey Deitel "C++ How to Program" 10th Edition
  - Walter Savitch "Problem Solving with C++" 10th Edition
  - D. S. Malik, "C++ Programming: From Problem Analysis to Program Design" 6th Edition

- **Lecture Material (Acknowledgements)**

   Lecture material is based on several books and internet sources.

BEING A GOOD UNIVERSITY STUDENT – TIPS & ADVISES

Annual vs Semester System

- Programming Fundamentals course is make or break
- Make sure that you **understand in the class**
- No concept of **tuition** – use office hours instead
- No concept of "seen/same" examination. Assessments will be about the same taught concepts but compose of **unseen problems**
- **Deadlines** are important – never expect any extension
- Academic calendar is **fixed**
- Task: Check out Academic Calendar (in References folder)
- Task: Read Student Handbook (in References folder)
  - *ignorantia legis neminem excusat* ("ignorance of law excuses no one"): a person who is unaware of a law may not escape liability for violating that law merely by being unaware of its content.
  - Code of Conduct (must read)

Tips for high achievers

- Believe in yourself
- Set Life objective and align this subject with your life objective
- Know your teacher (teachers wants to know their students)
- Discuss your future ambitions with teacher
- Be interactive - Ask questions and do discussions
- We have high expectations from students -> work hard

Advises

- Teachers/instructors can't have absolute knowledge

- Respect others (culture, race, religion, political)

- Honest to yourself (work hard, don't waste time)

- Be honest to others
  - Teachers (do course tasks yourself – don't worry for the results)
  - Fellows (don't share assignments – you are encouraged to help though)

- Study group, project team

- Peer2 peer learning

Any Questions ?