

# Operating System Lab Assignment 01: Design and Deploy Standard Input, Output, and Error Interface Driver and System Services

Dr. Mosaddek Tushar, Professor  
Dr. Upama Kabir, Professor  
Computer Science and Engineering, University of Dhaka,  
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## 1 Objectives and Policies

### 1.1 General Objectives

The objectives of the lab assignment are to understand and have hands-on training to build confidence and working knowledge in developing operating system standard input, output, error driver, and system services. You will use these expanded system services throughout the lab course for input and output data using standard input and output devices.

### 1.2 Assessment Policy

The assignment has three level objectives (i) primary objectives, (ii) advanced objectives, and (iii) optional boost objectives. Every student must complete the primary objective; however, they can attempt advanced and optional Boost-up objectives. The advanced objective will be a primary objective in the subsequent assignment. Further, you can achieve five (5) marks for completing the optional objectives and add these marks at the end of the semester with your total lab marks. However, you cannot get more than 100% assigned for the labs. The current lab does not contain advanced or optional boost objectives.

## 2 What to do?

- Download code ‘asst01.zip’ from course website.
- Unzip ‘asst01.zip’
- Implement ‘kprintf(..)’ and ‘kscanf(..)’ function in ‘kstdio/kstdio.h’

To compile the code, go to ‘asst01/src/asst01’ and execute ‘make all.’ After successful compilation, download the code to the microcontroller and execute. The code should display output and input from the terminal program without error.

## 3 CSE3211OS Source tree (we will explain in the lab class)

- ‘kern’ contains all necessary files and packages for the kernel code.
- ‘kern/arch’ has MCU and Peripheral driver code – you are free to modify without changing the function name
- ‘include’ directories contain a ‘C’ headers for necessary function prototypes
- ‘kmain’ has the boot program called by reset handler

## 4 What to submit?

Submit correctly functional code for ‘kprintf’ and ‘kscanf.’ Compress the ‘asst01’ to ‘asst01.zip’ and submit it to google classroom. Also, the submission must contain a report describing your implementation. You must demonstrate your work after two weeks. We will announce the demonstration date later.

**Alert:**The current function may not be fully functional for interrupt and other services. However, you can add codes for interrupt. Please discuss this with me before adding any extra functionalities.

**Alert:**You can discuss with your classmates, however, do not copy code from others.