



DEPARTMENT of ELECTRONICS and COMMUNICATION ENGINEERING  
INSTITUTE OF TECHNOLOGY  
University of Kashmir  
NAAC Accredited Grade-'A+'

## CIRCULAR

Attention all third semester ECE students: Please be informed that you have been assigned specific group projects to work on. Your task is to thoroughly research and analyse the given problems using literature and design and implement the solutions on hardware. Please note that the implementation should solely rely on digital logic gates, digital integrated circuits, or discrete components. The use of microprocessors or microcontrollers is strictly prohibited (unless or otherwise discussed below). Furthermore, you are required to prepare a technical report on the assigned problems, create a PowerPoint presentation, and build the hardware for the problem on-board. You must submit your project report, (PPT) presentation, presentation video, and hardware at the end of the semester. It is important to note that the project work constitutes a significant part of the continuous assessment for both the theory and lab components of DSD-I.

### LIST OF PROJECTS AND ALLOCATION

S.NO.	Name	GROUP NO.	ROLL NOS.	TITLE OF THE PROJECT	PROJECT DESCRIPTION	PROJECT DISCUSSION
1	Taaha Muneeb Musaib Ikraam Kashif	G1.	21160145002 21160145024 21160145017 21160145036 21160145028	<b>Digital IC Tester.</b>	Testing of various basic gates, IC's like NOT, AND, OR, NAND, NOR, XOR, XNOR.	The hardware must be able to fit in any basic IC on a Ziff socket and indicate through led or LCD the passing and failing of the chip.
2.	Hammas Emaad Ateeb Moazam Ziyam	G2.	21160145023 21160145004 21160145019 21160145037 21160145003	<b>Power supply with digital controls for switching between voltages and ports.</b>	A multi voltage power supplying 5v,9v and 12v but the voltage needs to be selected digitally.	The hardware must have a single output port whose output voltage can be selected using a push button and indicated using LEDs with text written below.
3.	Hiba Sehrish Farhat Suhail Roonaq	G3.	21160145030 21160145026 21160145039 21160145053 21160145049	<b>Single axes light following tilt panel.</b>	A panel tied to a motor that always follows the light source mostly used in smart solar panels.	The hardware must compose a small PV panel which will always direct itself to the maximum light source. The sensors can be implemented using LDR's .



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4.	Zuha Wahdat Zamina Toiba Numrah	G4.	21160145033 21160145045 21160145010 21160145047 21160145048	<b><i>Light following ROBO.</i></b>	A robotic vehicle that stops in no light but if there is light moves towards it. In short a light seeking robotic vehicle.	The sensor may be implemented through LDR and the motor driving the vehicle using relays and digital circuit.
5.	Azhar Hafsa Maria Insha Musavir	G5.	21160145054 21160145055 21160145056 21160145052 21160145057	<b><i>A 3D space, area security cover-up system using multiple reflection LASER.</i></b>	A system to check for illegal entry into space using multiple reflection of LASER using mirrors.	The hardware may contain a hard cardboard box simulating an area fitted with laser, mirrors and sensor to detect the breach.
6.	Mufasir Moin Towseef Sameer Nashid	G6.	21160145031 21160145011 21160145035 21160145058 21160145025	<b><i>Design of a basic ROM(Read Only Memory) using diodes, resistors, decoders to store your Name and display it.</i></b>	A pcb based circuit made out of diodes, resistors power supply and digital decoder IC, to implement a ROM.	The hardware may contain a hex display to display the name stored in the implemented ROM
7.	Ayesha Saira Jaziba Asmat Muqadas	G7.	21160145006 21160145012 21160145038 21160145051 21160145046	<b><i>Electrical phase detection circuit using XOR gates.</i></b>	Checking and calculating the phase between the current and voltage waveform using voltage and current sensors and xor gate logic	The implemented hardware will take the voltage and current signals from the ac mains through voltage and current transformers, attenuate them, convert them to digital waves and feed in to XOR for phase detection.
8.	Sabit Gufraan Muhib Basim	G8.	21160145018 21160145034 21160145040 21160145044	<b><i>Battery charge indicator.</i></b>	A circuit displaying using bar graph the amount of charge in the battery left.	
9.	Amaan Jubair Sheeba Siman	G9.	21160145009 21160145005 21160145014 21160145027	<b><i>An optical encoder device, using optical encoded disc and LDR array.</i></b>	An optical encoder system for sensing and calculating the position of a rotating object	The hardware may be implemented using a transparent CD and gray coding it using black tape. Using the LDR sensor array, sense the encoded pattern
10.	Zooman Ainun	G10.	21160145021 21160145015	<b><i>Water level controller for tanks using flip-flops.</i></b>	A digital circuit to ring an alarm and switch off the	



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	Abaan Abrish		21160145007 21160145032		pump when level of water reaches up in a tank.	
11.	Murtaza Faheem Mahdia Aiman	G11.	21160145022 21160145008 21160145020 21160145016	<i>A digital communication system with 8bit, XOR encryption.</i>	A series/parallel communication link to be encrypted using XOR for secure communication.	The hardware may include arduinos for transmission and reception of digital data, but a digital circuit for encryption and decryption

Dated: 26-04-2023

Faculty Incharge

Digital System Design-I