University of Asia Pacific (UAP)
Department of Computer Science and Engineering (CSE)

Course Outline

Program:	Computer Science and Engineering (CSE)
Course Title:	Peripheral & Interfacing
Course Code:	CSE 315
Semester:	Spring-2020
Level:	6th Semester
Credit Hour:	3.0
Name & Designation of Teacher:	A S Zaforullah Momtaz, Assistant Professor (ZAM) Abdullah Al Omar, Lecturer (AAO)
Office/Room:	7th Floor
Class Hours:	Sunday 11:00a.m.-12:20p.m. Saturday 05:00p.m.-06:20p.m.
Consultation Hours:	Sunday 12:30p.m.-01:50p.m.
e-mail:	(zaforullah, omar.cs)@uap-bd.edu
Mobile:	+8801723722788 (ZAM), +8801676367070 (AAO)
Rationale:	Required course in the CSE program.
Pre-requisite:	CSE 209, CSE 311
Course Synopsis:	This course will cover the Interfacing basics. Students will learn about the interfacing components (e.g., Mini systems, sensors etc.). This course covers the Arduino Environment Programming, Basic I/Os, RAM, ROM, HDD, USB Keyboard, Mouse, 2D & 3D Printers, 2D & 3D Scanners, Computer Cards: Sound, Graphics, LAN. IoT, HCI, Edge Computing, BCI, Dependable computing
Course Objective:	The objectives of the course are to 1. Introduce the basics of Peripheral and Interfacing.

2. Explain several peripheral devices and sensors.
3. Introduce Arduino Programming and the hardware configuration of Arduino boards
4. Explain high level methods in Peripheral and Interfacing (e.g., IoT, Edge Computing, HCI, BCI, etc.)

Course Outcomes (CO) and their mapping with Program outcomes (PO) and Teaching-Learning Assessment methods:

CO No.	CO Statements: Upon successful completion of the course, students should be able to:	Corresponding POs (Appendix-1)	Bloom's taxonomy domain/level (Appendix-2)	Delivery methods and activities	Assessment Tools
CO1	To provide knowledge and understanding on principles of interfaces and different types of peripherals	1	Remember	Live/Recorded video Lecture, multimedia	Quiz, Written exam
CO2	To introduce the concept of different types of peripherals and interfaces.	5	Understand	Live/Recorded video Lecture, Group discussion	Quiz
CO3	To learn the operation of different types of peripherals and interfaces.	3	Apply	Live/Recorded video Lecture, Problem Solving, Group discussion	Presentation
CO4	To enable the student to gain Application of different useful Peripheral and interfacing components	2	Evaluate	Problem Solving	Assignment, Project
CO5	To emphasize the Design and Implementation of different types of devices that bridges gap between human and computer interface.	5	Analyze	Live/Recorded video Lecture, multimedia	Assignment

Weighting COs with Assessment methods:

Assessment Type	% weight	CO1	CO2	CO3	CO4	CO5
Final Exam	**50%**	10	10	10	10	10
Mid Term	**20%**	5	15			
Class performance, Quizzes, Presentation, case study, open book exam, Assignment, Project, reports on field trip/workshop attended Others..	**30%**			10	15	5
Total	**100%**	15	25	20	25	15

Grading Policy: As per the approved grading policy of UAP (Appendix-3)

Course Content Outline and mapping with Cos

Weeks	Topic/Content	Course Outcome	Delivery methods and activities	Reading Materials
Week 1	Course outline Guidelines, Introduction to Peripheral & Interfacing	CO 1	Live/Recorded video Lecture, Multimedia	Documents provided in the class, Class lecture
Week 2	Introducing to Arduino Environment	CO 2	Live/Recorded video Lecture, Multimedia	Website- www.Arduino.cc
Week 3	Arduino Programming	CO 3	Live/Recorded video Lecture, Problem Solving	Class lecture and slide (If provided)
Week 4	Arduino Programming	CO 5	Live/Recorded video Lecture, Problem Solving	Class lecture and slide (If provided)

Week	Topic	CO	Teaching-Learning Strategy	Reference
Week 5	Quiz 1, Introduction of Sensors	CO 1	Live/Recorded video Lecture, Discussion	Website-www.Arduino.cc
Week 6	IoT based Theory	CO 4	Live/Recorded video Lecture, multimedia Case study	Google scholar
Week 7	Quiz 2, Review on the Mid semester syllabus	--	--	--
Mid Exam				
Week 8	Half Adder/ Subtractor Programming	CO 3	Live/Recorded video Lecture, Problem Solving	Class lecture, Youtube vedios
Week 9	Full Adder/ Subtractor Programming	CO 3	Live/Recorded video Lecture, Problem Solving	Class lecture, Youtube vedios
Week 10	Function Implementation in Arduino	CO 4	Live/Recorded video Lecture, Problem Solving, Group Discussion	Class lecture and Slide (If provided)
Week 11	Quiz 3, Primary memory	CO 2	Live/Recorded video Lecture, multimedia	Slide
Week 12	Secondary Memory	CO 2	Live/Recorded video Lecture, multimedia	Slide
Week 13	Servo motor with Arduino, Edge Computing	CO 5	Live/Recorded video Lecture, Case study	Arduino.cc and google scholar
Week 14	Quiz 4, Review on the full syllabus	--	--	--

Required Reference(s): **1. Programming Arduino: Getting Started with Sketches** by Simon Monk
2. Arduino: A Technical Reference: A Handbook for Technicians, Engineers, and Makers by J. M. Hughes
3. Arduino Cookbook by Michael Margolis
4. Computer Peripherals By Barry Wilinson

Recommended Reference(s): 1. www.arduino.cc
2. Microprocessors and Interfacing By Dauglas V Hall
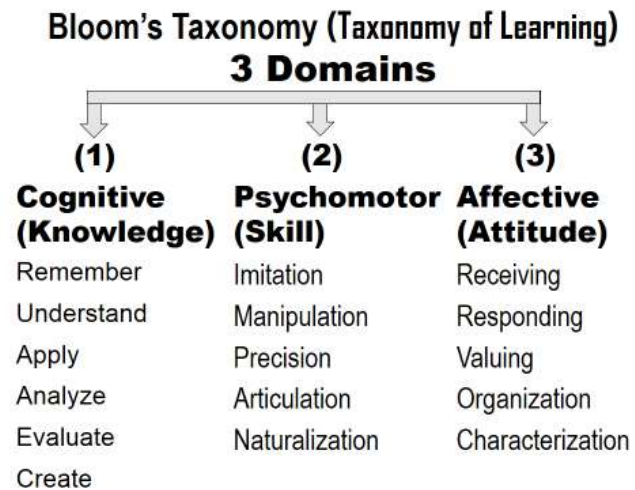
Special Instructions:
- Minimum Required Attendance 70%
- Late presence is not allowed. Attendance will be automatically taken from the **Google Meet**.
- **Each day there will be a short quiz (2-5 questions) upon the lecture of that day. This will be added as the assessment's 10 marks.**
- Assignment submission rules- If you miss the due date then the full marks will be deducted respectively to the number of days you have missed.
- Plagiarism of the assignments will be checked

Prepared by (Course Teacher)	Checked by (Chairman, PSAC committee)	Approved by (Head of the Department)

Appendix-1:
Washington Accord Program Outcomes (PO) for engineering programs:

No.	PO	Differentiating Characteristic
1	Engineering Knowledge	Breadth and depth of education and type of knowledge, both theoretical and practical
2	Problem Analysis	Complexity of analysis
3	Design/ development of solutions	Breadth and uniqueness of engineering problems i.e. the extent to which problems are original and to which solutions have previously been identified or codified
4	Investigation	Breadth and depth of investigation and experimentation
5	Modern Tool Usage	Level of understanding of the appropriateness of the tool
6	The Engineer and Society	Level of knowledge and responsibility
7	Environment and Sustainability	Type of solutions.
8	Ethics	Understanding and level of practice
9	Individual and Team work	Role in and diversity of team
10	Communication	Level of communication according to type of activities performed
11	Project Management and Finance	Level of management required for differing types of activity
12	Lifelong learning	Preparation for and depth of Continuing learning.

Appendix-2

Bloom's Taxonomy (Taxonomy of Learning)
3 Domains

(1) Cognitive (Knowledge)	(2) Psychomotor (Skill)	(3) Affective (Attitude)
Remember	Imitation	Receiving
Understand	Manipulation	Responding
Apply	Precision	Valuing
Analyze	Articulation	Organization
Evaluate	Naturalization	Characterization
Create		

Appendix-3
UAP Grading Policy:

Numeric Grade	Letter Grade	Grade Point
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.50
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.00
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.50
45% to less than 50%	C	2.25
40% to less than 45%	D	2.00
Less than 40%	F	0.00