Exercises

You will be experimenting with various aspects of WICED Bluetooth by completing the exercises below. Labs are marked as "Basic" and "Advanced". You should make sure you complete the basic exercises first and then work on the advanced exercises as time allows.

#	✓	Chapter	Exercise	Category	Description
1		01 (Tour)	1.1	Basic	Create a Forum Account
2			1.2	Basic	Start ModusToolbox IDE, Explore the Docs
3			1.3	Basic	Program a simple Application
4			1.4	Basic	Use the Command Line
5			1.5	Advanced	Use Visual Studio Code
6		02 (Peripherals)	2.1	Basic	Blink an LED
7			2.2	Basic	Add Debug Printing to the LED Blink Project
8			2.3	Basic	Read the State of a Mechanical Button
9			2.4	Basic	Use an Interrupt to Toggle the State of an LED
10			2.5	Basic	Use a Timer to Toggle an LED
11			2.6	Basic	LED brightness with a PWM
12			2.7	Basic	LED toggling at specific frequency and duty cycle with a PWM
13			2.8	Basic	Read Motion Sensor Data Using I2C
14			2.9	Advanced	Write and Read Data in the NVRAM
15			2.10	Advanced	Calculate the Resistance of a Thermistor using the ADC
16			2.11	Advanced	Send a value using the standard UART functions
17			2.12	Advanced	Get a value using the standard UART functions
18			2.13	Advanced	Use the RTC to keep track of the Date/Time
19		03 (RTOS)	3.1	Basic	Semaphore
20			3.2	Advanced	MUTEX
21			3.3	Advanced	Queues
22		04A (Essential Bluetooth LE Peripherals)	4A.1	Basic	Create a Bluetooth LE Project with a BT101 Service and LED Characteristic
23			4A.2	Basic	Add a Connection Status LED
24			4A.3	Basic	Create a Bluetooth LE Advertiser
25			4A.4	Basic	Connect using Bluetooth LE
26		04B (More Advanced Bluetooth LE Peripherals)	4B.1	Basic	Simple Bluetooth LE Project with Notifications
27			4B.2	Basic	Bluetooth LE Pairing and Security
28			4B.3	Advanced	Save Bluetooth LE Pairing Information (i.e. Bonding)
29			4B.4	Advanced	Add a Pairing Passkey
30			4B.5	Advanced	Add Numeric Comparison
31			4B.6	Advanced	Add Multiple Device Bonding Capability
32		04C (Bluetooth LE Low Power, Beacons, OTA)	4C.1	Basic	Bluetooth LE Low Power
33			4C.2	Advanced	Implement Eddystone URL Beacon
34			4C.3	Advanced	Use Multi-Advertising on a Beacon
35			4C.4	Advanced	Simultaneous Eddystone and iBeacon
36			4C.5	Advanced	Advertise Manufacturing Data and Provide Scan Response
37			4C.6	Advanced	OTA Firmware Upgrade (Non-Secure)
38			4C.7	Advanced	OTA Firmware Upgrade (Secure)
39		04D (Bluetooth LE Centrals)	4D.1	Basic	Make an Observer
40			4D.2	Basic	Read Device Name to Show Only Your Peripheral
41			4D.3	Basic	Connect to Your Peripheral and Turn ON/OFF the LED
42			4D.4	Advanced	Add Commands to Turn Notify ON/OFF
43			4D.5	Advanced	Do Service Discovery
44			4D.6	Advanced	Run the Advertising Scanner

#	✓	Chapter	Exercise	Category	Description
45		05 (Debugging)	5.1	Basic	Run BTSpy
46			5.2	Advanced	Use ClientControl with HCI Commands
47			5.3	Advanced	Run the Debugger
48		06A (Classic Bluetooth)	6A.1	Basic	Create a Serial Port Profile application
49		07A (Mesh Intro)	7A.1	Basic	Create a Network with a LightDimmable device
50		07B (Mesh Protocol)	7B.1	Basic	Add more LightDImmable devices to the network with Groups
51		07C (Mesh Firmware)	7C.1	Basic	Add an OnOff Switch to your Network
52			7C.2	Basic	Add a Dimmer Switch to your Network
53			7C.3	Advanced	Add 2nd Element to LightDimmable
54			7C.4	Advanced	Convert LightDimmable to HSL control
55		08 (PSoC 6 + 43xxx Bluetooth)	8.1	Basic	Basic Bluetooth LE Peripheral
56			8.2	Basic	Notifications
57			8.3	Basic	Pairing
58			8.4	Basic	Bonding