

Syllabus: Arduino Basic for Interactive Design

TU Berlin Summer University 2019 Term 2a

Week 1 July 1st-5th

| | 1 | 2 | 3 | 4 | 5 |
|---------------|--|---|----------------------------------|---------------------------------|---------------------------------|
| | Monday | Tuesday | Wednesday | Thursday | Friday |
| 9:00 - 10:30 | Welcome Day! Room H 3005, 3 rd floor, TUB main building 10:30: Orientation session 12:30-13:15: Buffet lunch 13:30-15:00: Course Introduction & Lecture 15:30-16:15: Campus Tour 16:15-16:45: Coffee & Cake | Introduction to Arduino Board & Accessories | Getting Started with Arduino IDE | C Programming & Libraries | Arduino Shields |
| 11:00 - 12:30 | | Passive Circuit Components | C Programming | Sensors & Actuators | Programming & Interfacing |
| 13:30 - 15:30 | | Simple Circuit Exercises | Cultural Program | Programming & Interfacing | Cont. Programming & Interfacing |
| 16:00 + | | Cont. Simple Circuit Exercises | | Cont. Programming & Interfacing | Cultural Program |

Week 2 July 8th-12th

| | 8 | 9 | 10 | 11 | 12 |
|---------------|--------------------------------|---------------------|-----------------------------------|----------------------------|-----------------------------|
| | Monday | Tuesday | Wednesday | Thursday | Friday |
| 9:00 - 10:30 | Team Formation & Lab Exercises | No Class | Trial & Error / Arduino Debugging | Iteration & Prototyping II | Iteration & Prototyping III |
| 11:00 - 12:30 | Design Challenge | Ideation | Trial & Error / Arduino Debugging | Trouble-shooting | Finalizing Design |
| 13:30 - 15:30 | Design Thinking | Prototyping I | Cultural Program | Trouble-shooting | Cultural Program |
| 16:00 + | Cultural Program | Cont. Prototyping I | | | |

Week 3 July 15th-19th

| | 15 | 16 | 17 | 18 | 19 |
|---------------|----------------------------|---------------------------|---------------------|----------------------------------|---|
| | Monday | Tuesday | Wednesday | Thursday | Friday |
| 9:00 - 10:30 | Fabrication & Construction | Pre-assembly | Repair & Adjustment | Final Testing & Trouble Shooting | Review Session |
| 11:00 - 12:30 | Fabrication & Construction | Pre-assembly | Repair & Adjustment | Final Testing & Trouble Shooting | Review Session |
| 13:30 – 15:30 | Fabrication & Construction | Testing & Demo | | | 16:00 Certificate Ceremony |
| 16:00 + | Cultural Program | Testing & Demo Discussion | Cultural Program | Final Presentation | Lichthof, 1 st floor, TU Berlin Main Building |

Key

| | | | |
|---------|-------------------------|------------|----------------------------|
| Lecture | Field Trip or Practical | Assessment | Cultural Program activity* |
|---------|-------------------------|------------|----------------------------|

*The cultural program timetable will be emailed to you shortly before your course starts. For more information about the cultural program, and for examples of previous schedules, head here: https://www.tu-berlin.de/menue/summer_university/cultural_program/

Assessment information

In order to qualify for the course credit and certificate, you are required to attend at least 80% (48 hours) of the contact hours as enumerated in the course schedule.

If you have a legitimate reason, you must inform the instructors and ask for their consent to miss a class.

Your work will be assessed based on the following learning goals:

- (1) Understanding interactivity
- (2) Basics of circuit design and Arduino processor environment
- (3) How to incorporate sensors and actuators in the design
- (4) How to write simple programs for Arduino

Your work will be weighted as follows:

- Class participation 10%
- Assignment 30%
- Quality of the final product 40%
- Presentation 20%

Grading information

All participants of the TU Berlin Summer & Winter University are required to select their grading option at the time of registration. The two options available are (i) graded or (ii) pass/fail.

All participants who select option (i) graded, will receive a grade under the German grading system. The following table provides an overview of the grading system and equivalent scores for international credit transfers:

| Total mark | German grade | English description |
|---------------------|--------------|---------------------|
| More or equal to 95 | 1,0 | Excellent |
| More or equal to 90 | 1,3 | Very good |
| More or equal to 85 | 1,7 | Good |
| More or equal to 80 | 2,0 | Good |
| More or equal to 75 | 2,3 | Good |
| More or equal to 70 | 2,7 | Satisfactory |
| More or equal to 65 | 3,0 | Satisfactory |
| More or equal to 60 | 3,3 | Satisfactory |
| More or equal to 55 | 3,7 | Sufficient |
| More or equal to 50 | 4,0 | Sufficient |
| Less than 50 | 5,0 | Failed |

Credit Points

ECTS is a point system and European standard developed by the Commission of the European Community. ECTS stands for European Credit Transfer System. The aim is to provide common procedures and guarantee academic recognition of studies abroad. The credit system is based on student workload. All lectures, seminars, excursions and homework count towards the workload. One point is awarded for the equivalent of 25-30 hours of workload.