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| **Planned Weekly Schedule** | | | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Week** | **Topic** | **Readings** | **Online Lecture**  **Monday 9:30-10:20** | **Tutorial and Lab Class in labs** | | | | **Tutorial** | | **Practical Exercise(Lab)** | | 1 | Course Introduction: Computational Thinking Concepts  Programming languages:  Machine language and high-level programming language  Basic internal operation of computer  Binary and Hexadecimal Numbers, ALU operation (self-study)  Basic program structure:  Pseudo code and flowchart; Data type and Variables | On-line Video  Week 1 | No class(PH) | No class | | | | 2 | Basic program structure:  Boolean relational Operators, selection | On-line Video  Week 2 | Review/Advance Lecture  review\_ data type variables  Advanced\_ function call input ouput  review & advance import | Discussion question #1(week2 LAMS)  Psuedo Code,  Data Type & Variable | Practical Exercise #1: Familiarization with Raspberry Pi (RPi) board.Python/C/Java on RPi, Remote Access of RPI, IDE for Python programming | | | 3 | Basic program structure:  Repetition | On-line Video  Week 3 | Review/Advance Lecture  review\_boolean branching  Lab useful information\_RGB,  Advanced\_chained assignment multiple assignment  Advanced\_formatting | Discussion question #2(week2 & 3 LAMS)  Boolean relational Operators, selection, Repetition | | Practical Exercise #2:  Variable, input, print | | 4 | Abstraction:  Data abstraction (Data structure)  Module 4D – Abstraction:  Procedural abstraction(function development) | On-line Video  Week 4 | Review/Advance Lecture  Lab useful information\_ input validation, exception handling in lab  review\_while looping  review\_for loop | Discussion question #3(week4 LAMS)  Data abstraction (Data structure) | | Practical Exercise #3:  Selection, Repetition | | 5 | Decomposition  Divide and Conquer, Recursion  Case studies | On-line Video  Week 5 | Review/Advance Lecture | Discussion question #4 (week 4 LAMS)  Procedural abstraction(function development) | | Practical Exercise #4 : Data abstraction (Data structure) | | 6 | Pattern recognition  Iterative Accumulation, Case studies | On-line Video  Week 6 | Review/Advance Lecture | Discussion question #5 (week 5 LAMS)  Decomposition | Practical Exercise #5: Procedural abstraction(function development) | | | 7 | Algorithms design  Sorting algorithms  Searching algorithms | On-line Video  Week 7 | Review/Advance Lecture | Discussion question #6 (week 6 LAMS)  Decomposition and - Pattern recognition | | Practical Exercise #6: Decomposition | | | | |
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