Data Structure

<table>
<tr><th colspan="8">Course Information</th></tr>
<tr><td>Course Code</td><td colspan="2">ICE3402P</td><td>Credit Hours</td><td colspan="2">32</td><td>Credits</td><td>2</td></tr>
<tr><td rowspan="2">Course Name</td><td colspan="7">（中文 Chinese name）数据结构</td></tr>
<tr><td colspan="7">（英文 English name）Data Structure</td></tr>
<tr><td>Prerequisite)</td><td colspan="7">Have C++ basis</td></tr>
<tr><td>Instructor</td><td colspan="2">LU Jialiang
LI Hao</td><td>Course Webpage</td><td colspan="4">https://oc.sjtu.edu.cn/courses/44241</td></tr>
<tr><td>Description</td><td colspan="7">This course introduces advanced data structure such as different type of tree, Hash table and graph, some algorithm will also be revised. Data structure is one of the fundamental courses in Computer Science. It deals with storage and processing technique of data. The objective of the course is to master the following aspects: 1) Understand the logical relationship between data and processing requirements; 2) How to deal with data storage; 3) how to process data. The course will be divided into 5 parts: 1) Object-Oriented Programming (from C to C++)， list revised; 2) Binary Tree, Non-Binary Tree; 3) Sort, external sort; 4) Searching: Hashing and other method; 5) Graph</td></tr>
<tr><th colspan="8">Course objectives and contents</th></tr>
<tr><td>Course Objectives</td><td colspan="7">1) Understand the logical relationship between data and processing requirements;
2) How to deal with data storage;
3) Master basic data structures: list, tree,
4)Develop modeling capability using graph and advanced data structure</td></tr>
<tr><td rowspan="2">Class Schedule & Requirements & Course Objectives)</td><td>Chapter</td><td>Content</td><td>Objectives</td><td>Teaching hour</td><td>Teaching form</td><td>Homework and evaluation</td><td>Educational points</td><td>Course objective corresponded above</td></tr>
<tr><td>1</td><td>Introduction to data structure</td><td>Understand the concept of data structure and basic tool for</td><td>2</td><td>Lectures</td><td>homework</td><td></td><td>1</td></tr>
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			algorithm analysis					
	2	List, Stak & Queue	Array, Linked List Stack, Queue	4	Lectures	Online Judging System		2,3
	3	Binary Tree	Binary Tree/ Binary Search Tree	4	Lectures	Online Judging System/Quiz		2,3,4
	4	General Tree	General Tree/ Sequential implementation	4	Lectures	Online Judging System/Quiz		2,3
	5	Sorting	Internal sorting/external sorting	4	Lectures	Course Project		1,2
	6	Heap	Heap/ Priority Queue	2	Lecture	Course Project		2,3
	7	Searching	Hashing	2	Lectures	Course Project		2,3
	8	Graph	Graph representation/ BFS/ DFS/ Algorithms	4	Lectures	Online Judging System/Quiz		3,4
	9	Indexing	2-3 Tree/ B-Tree/ B+-Tree	4	Lectures	Quiz	和大型数据系统的关联，培养科技报国情怀	2,3
	10	Revision		2	Lectures	homework		1,2,3,4

Grading	Continuous Evaluation: 60% 1. Assiduity 10% 2. Homework 50% Final Evaluation: 40% 1. Online Quiz 20% 2. Project + Report: 20%
Textbooks & Other Materials	Reference book: [1] A Practical Introduction to Data Structures and Algorithm Analysis by Clifford A. Shaffer, 3rd edition