<table>
<tr><td>Module designation</td><td colspan="3">IF232 Algorithms & Data Structure</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td colspan="3">2</td></tr>
<tr><td>Person responsible for the module</td><td colspan="3">Alethea Suryadibrata</td></tr>
<tr><td>Language</td><td colspan="3">English & Indonesian</td></tr>
<tr><td>Relation to curriculum</td><td colspan="3">Compulsory</td></tr>
<tr><td>Teaching methods</td><td colspan="3">Lecture, Demonstration</td></tr>
<tr><td>Workload (incl. contact hours, self-study hours)</td><td colspan="3">Total workload: 181.44 hours
Theory
- 35.01 hours of synchronous lecture.
- 84.06 hours of self-study and assignments in the form of essays.
- 17.01 hours related to exam and self study
Lab
- 23.35 hours of lab module (and in-class assistance)
- 16.34 hours of self-lab and assignments
- 5.67 hours related to exam and self study</td></tr>
<tr><td>Credit points</td><td colspan="3">4 SKS (6.72 ECTS)</td></tr>
<tr><td>Required and recommended prerequisites for joining the module</td><td colspan="3">Required:
- IF130 Programming Fundamentals</td></tr>
<tr><td rowspan="2">Module objectives/intended learning outcomes</td><td rowspan="2">Course Learning outcome</td><td colspan="2">Related ELOs</td></tr>
<tr><td>ELO</td><td>Performance Indicator</td></tr>
<tr><td>Students are able to utilize various data structures to solve simple problems.</td><td>J</td><td>Understand algorithms and mathematical principles upon which the computer system is founded to solve engineering problems.</td></tr>
<tr><td>Content</td><td colspan="3">This course covers the algorithms, elements, preparation methods, processing, and data manipulation in a large scale setup with modern structured programming languages. It also includes examples of choosing the proper data structures based on the given cases.

Specifically, this course contain these topics:
1. Array & Pointer
2. Structures, Unions, Enumerations
3. File Processing
4. Linked List
5. Double Linked list</td></tr>
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	6. Stack dan queue 7. Hashing 8. Tree 9. Heaps 10. Sorting 11. Searching 12. Graphs
Examination forms	Written test, Project
Study and examination requirements	Total score ≥ 55 must be satisfied. The total score is the weighted average of the assignments (30%), the midterm exam (30%), and the final exam (40%).
Reading list	1. Paul Deitel and Harvey Deitel. 2016. C How to Program: with an introduction to C++, 8th Edition, Global Edition. Great Britain: Pearson Education. 2. Reema Thareja, 2014. Data Structures Using C, 2nd Edition. India: Oxford University Press.