

TNDo12: Course Information

This course information is valid from HT1/2022 until HT1/2023

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Aim of the course

The aim of this course is to introduce the basics of programming, using C++ language. The course goals are described in the LiU [studieinfo](#). The course requires no previous knowledge in programming.

Course responsible

[Aida Nordman](#).

Course points and workload

This course awards 6 ECTS credits. According to university regulations, one credit corresponds to ~27 hours of work (i.e. 3 days of 9h/day). Thus, the course implies ~160 hours of work (i.e. ~4 weeks).

How to contact us

E-mail addresses for the course staff are available from the course website. All communication with the course staff (e.g. questions related to the course) must be done via LiU email or by talking to the staff during the scheduled distance meetings. There are no other alternative channels of communication.

To guarantee that all student e-mails are answered, the following rules must be followed when sending an e-mail about the course. E-mails not following these rules are simply ignored.

- Use your LiU e-mail address when contacting the course staff by e-mail.
- The course code and your study programme must be given in the e-mail's subject (e.g. "TND012/MT: ...", "TND012/ED: ...", or "TND012/KTS: ...").

We may need to send information about the course to all registered students. To this end, the course e-mail list with the **registered** students is used.

Programming code sent by email is ignored.

Course website

All relevant course information (such as deadlines, duggor dates, plan for the lectures, labs, old exams) is posted on the [course website](#).

The course website is updated during the course. Moreover, access to parts of this site requires a password. All admitted students receive the password by e-mail before the start of the course. The password is also available in the [Lisam](#) course room. If you registered late in the course then you can request the password by e-mail.

How is Lisam used in the course

[Lisam](#) course rooms is used for the following.

- Lab group registrations (the *Signup* function in Lisam is used).
- Duggor (the *Submissions* function in Lisam is used).
- Post the course schedule.
- Post recorded videos, if any are produced.

All other course material is posted from the [course website](#).

Late course registrations

A course registration is considered to be late, if it's received after the course start (i.e. 29 of August).

- Course registrations after 29 of August imply that you cannot participate in all lab sessions (e.g. lab 1).
- Course registrations after 6 of September may imply that you are denied access to the duggor in the course.

Organization

The course consists of

- 2 information sessions, one at the beginning of the course and another at the end of the course. The latter gives information about the final computer examination procedure. Each information session is (at most) 2h.
- 12 lectures. Each lecture is 2h.
- 4 practical lessons (*övningar*). Each practical lesson is 4h.
- 6 lab HA sessions (HA stands for "*handledare*"). Each HA lab session is 4h.
- 7 lab RE sessions (RE stands for "*redovisning*"). Each RE lab session is 4h.

Lectures are given in English. Swedish and English may be used in the lessons and labs.

Literature

It's not mandatory to acquire any book for the course. There are very few books available, about programming in C++, aiming at beginner audience. Some options are listed below. Note that none of these books uses the latest standard of the language.

- [Programming: Principles and Practice Using C++](#) , Bjarne Stroustrup, 2nd edition, 2014.
- [The C++ Programming Language](#), Bjarne Stroustrup, 4th edition Addison-Wesley, 2013

- [C++ direkt](#), Jan Skansholm. Studentlitteratur, 2011. This is a book written in Swedish.

Other more advanced books, but with more potential for use in later courses, are suggested during the course.

Course software

- [Visual Studio 2022¹](#), with desktop development for C++.
- [CMake](#).

The software above is installed in the lab rooms and it's also used during the final computer exam. The computers in the lab rooms run on Windows. Note that you can connect to computers in LiU's lab rooms and, in this way, have remote access to the software installed in the computers of the lab rooms. To this end, you can use RDP client to connect or *Thinlinc*. More information can be obtained from this LiU web page about [remote login](#).

You can install the software above in your private Windows computer. If you have a Mac then you can install [XCode](#) (instead of Visual Studio).

Note that it is not the duty of the course staff to install any software in private computers.

Examination

To get the 6 credits, you need to complete successfully laboratory work and a final examination performed at the computer (*datortenta*). You have three chances to take the exam during the academic year.

This information assumes the final examination takes place at the computer lab rooms in the campus. If the university decides that a home exam² must be offered in October then the students will be informed about which rules apply for the exam.

- You get 3 ECTS points, if you complete all lab exercises and demonstrate them successfully before any set deadlines expire.
- You get 3 ECTS points, if you pass an individual computer exam or if you pass all three home duggor offered during the course.
- Approval in all three duggor awards automatically grade 3. You can get higher grade by then doing **Part II** and/or **Part III** of the final computer exam (see also the sections about [Duggor](#) and [Final course grade](#)).

The final computer exam has three parts. **Part I** has three exercises.

¹ Download the community version.

² This is related to which evaluation the university makes of the covid situation.

	Points	Difficulty Level
Part I	10 p	Basic
<i>Exercise 1</i>	2 p	
<i>Exercise 2</i>	4 p	
<i>Exercise 3</i>	4 p	
Part II	10 p	Medium
Part III	10 p	High

Part III only awards points if the programs run and produce sensible output.

Note that both the final examination and the duggor are **individual**. *All samverkan med andra personer är fusk.*

Final course grade

The final grade in this course can be either **3**, or **4**, or **5**. You can find below how it is decided your course grade.

Final Grade	Requirements
3	Approved in all three duggor. <u>Or</u> for Part I , you must have at least <ul style="list-style-type: none"> • 2p in Exercise 1, if you have not been approved in dugga 1 • 3p in Exercise 2, if you have not been approved in dugga 2 • 3p in exercise 3, if you have not been approved in dugga 3
	Fulfill the requirements for grade 3 <u>and</u> you must have at least
4	<ul style="list-style-type: none"> • 6 points in Part II <u>or</u> • 5 points in Part III.
5	Fulfill the requirements for grade 3 <u>and</u> you must have at least 8 points in Part III .

Software: campus exam

During the final computer exam, you must use the machines in the lab rooms which are equipped with Visual Studio 2022 and CMake. Thus, it's your responsibility to get acquainted with the computers in the lab rooms (by attending the scheduled lab sessions you get to know how to use the computers in the lab rooms).

Which aid material can be used during the final computer exam

- A C++ book. The following rules apply.

- Comments and notes in the margin of the book, directly relating to the text and examples on the relevant pages are allowed / *kommentarer och noteringar som direkt rör text och exempel på sidan i fråga får finnas i sidmarginalen.*
 - Corrections to errors (errata) for the book on separate page(s) are allowed / *rättelser till felaktigheter får finnas.*
 - Bookmarks in order to easily find certain pages in the different chapters are allowed / *egna sidflikar för att enkelt kunna hitta t.ex. de olika kapitlen är tillåtna.*
 - Empty pages, such as the blank pages in the book, may not contain comments and especially not programming code / *tomma sidor, in- och utsidorna av pärmarna, försättsblad, etc., får inte innehålla kommentarer, speciellt inte programkod.*
 - No extra pages or notes aside from those covered in the above points are allowed / *inga extra ark eller lappar, lösa eller fastsatta, får finnas utom det som täcks av ovanstående punkter.*
- cppreference.com can be read through a web browser.
 - [C++ notes](#) website.
 - [Lecture slides](#) used in the course will be available through a web browser.
 - Pencil and white paper.

No other help material is allowed during the exam.

IT-support during the computer exam

If there are problems with LiU network, university computers, or software installed in those computers, then you must inform the LiU IT-support. To this end, you should request to the exam watcher in your room to allow you to contact by phone the IT-support team (call 013-282828) so that you can describe the problem to the LiU support person.

You cannot claim that any exam outcomes are due to IT-problems which were not reported to the IT-support during the exam. In other words, it is your responsibility to communicate to the LiU IT-support any IT-problems you experience during the exam.

Note that course staff cannot provide any IT-support.

Improving your course grade (“plussa”)

If you have already been approved in the course but want to improve your grade then you only need to do the exercises in **Part II** and/or **Part III** of the final computer exam.

Since you have already been approved in the course, you are in the same situation as someone who has completed successfully all three duggor. Please, see the table above for grade 4 and 5, considering that you already fulfill the requirements for grade 3.

Note that you cannot do the duggor to improve your grade.

Duggor

The course has 3 **non-mandatory individual home** duggor. *All samverkan med andra personer är fusk.*

Each dugga should be seen as an opportunity for self-assessment and for getting feedback about whether you are attaining the course goals. Additionally, the duggor also provide an opportunity for students to develop their programming skills.

- Each dugga is graded as either passed (G) or failed (U).
- If you fail a dugga then you'll get a feedback report with the motivation for failure.
- If you pass dugga 1/dugga 2/dugga 3 then you can skip the corresponding exercise 1/exercise 2/exercise 3 of **Part I** of the final computer exam, respectively.
- Only students registered in the course can do the duggor.
- Your duggor points can only be used during the academic year.
- Duggor exercises are posted through Lisam and student answers (i.e. files with code) must also be submitted through Lisam.

If you borrow any ideas from a web page, or book, and use them in your solution for a dugga exercise, then you must explicitly indicate that fact and write the web page address or give the book reference.

Duggor dates and deadlines for submitting answers are made available from the [course website](#).

Duggor and re-registrations (“omregistrering”) in the course

All students who wish to do the duggor must be registered in the course no later than **6 of September**. Note that there might be a delay between the moment you register for the course and getting access to the course room in Lisam.

- If you re-register in the course after 6 of September then you may be denied the possibility to submit dugga 1.
- If you re-register in the course after 20 of September then you may be denied the possibility to submit dugga 2.
- If you re-register in the course after 4 of October then you may be denied the possibility to submit dugga 3.

Vid misstanke om försök till fusk

Both the duggor and the final computer exam must be solved **individually**. *All samverkan med andra personer är fusk*. For instance, you are neither allowed to use email during the exam nor post any information about the duggor/exam in any website³ until the deadline expires (in case of exams, until all exam sessions end). You cannot either discuss possible solutions to dugga exercises with anyone until the submission deadline closes, i.e. the solution you submit must be **solely** the result of your work. If you copy any code from a webpage then you must explicitly indicate that fact and write the web page address in a comment line preceding the copied code.

De lösningar som du skickar in i samtliga former av examination (duggor, datortenta, och labb) ska vara ett resultat av ditt eget arbete. Det är inte tillåtet att lämna in lösningar som har kopierats från andra studenter, även om modifieringar har gjorts. Vi ser mycket allvarligt på alla tendenser till fusk. Det är dock inte lärarnas uppgift att avgöra om fusk förekommer. Vid misstanke lämnas ärendet till universitetets disciplinnämnd som, om de anser att fusk föreligger, kan besluta om avstängning upp till sex månader. För mer information, se LiU website "[Disciplinära åtgärder](#)"

Lectures

You can find a preliminary [plan for the lectures](#) in the course website.

Updated slides and code used in the lectures will be made available soon **after** each lecture.

Labs

This course includes six sets of lab exercises. For each set of exercises, 2 lab sessions, **HA**ndledare and **RE**dovisning, are scheduled.

You must **prepare in advance** for each lab/HA session. To this end, you must start by reading carefully the lab instructions. For each lab, students get a description of the minimal preparation steps they need to do before the HA lab session, though we encourage you to do as much as you can in advance.

You are awarded 3 ECTS points, if you complete all lab exercises and demonstrate them successfully before any set deadlines expire

- During the **HA lab sessions** you can get help from your lab assistant with the code, if you have questions or want feedback.
- You must demonstrate your solutions for lab exercises during the **RE lab sessions**. Note that these lab sessions include an individual examination and,

³ e.g. Slack, Discord, GitLab, etc.

consequently, each member of the group must be prepared to answer questions about the presented solution.

- You work in groups of two persons.
- You must register for the lab sessions (see How to register for the labs).
- Your solutions to the lab exercises can neither be presented in a HA session nor be sent by email.
- A late lab can be presented during a RE session provided there is time during the 4h scheduled.

In the end of the course, you will receive an e-mail when the lab points are ready to register in Ladok. You then have until **25 of November** to report to the course responsible that you have not received your points. Any complaints about non-registered lab points received after 25 of November will be dealt when the course responsible has the time.

Note that lab points are valid until the end of your studies.

Presenting your solutions to lab exercises

You should present orally your solutions to the lab exercises during a RE lab session. Each lab group gets a time slot (~20 minutes) for presenting the labs before the first RE lab. You should use the same time slot for all *redovisning* lab sessions. Moreover,

- arriving late to a *redovisning* lab session (i.e. after the start of the time slot assigned to your group) implies that you can be denied the possibility to present your solutions;
- programs that do not compile or fail to execute correctly are not accepted;
- we do not accept copied code that you neither understand nor are able to explain;
- your code should be readable, well-indented, and use good programming practices;
- programs with global variables are not accepted, although global constants can be used;
- code for the lab exercises cannot be sent for final approval by e-mail;
- a late lab can only be presented provided there is time during a RE session;
- at most one late lab can be presented during a RE session.

If you fail to present all labs of the course until your last lab session on week 42 then you can present late labs during the re-exams (*om-tenta*) period week 1, 2023. To this end, you must email the course responsible not later than the end of week 50, so that we have

the time to prepare the staff and allocate the time. There are no other occasions to present late labs until the course starts again (HT1/2023).

How to register for the labs

- Registrations are done via [Lisam](#) (use the *Signup* function).
- You work in groups of **two persons**. Choose one lab partner in your class and register your lab group via Lisam. Note that MT1A, MT1B, KTS1, and ED1 have each two lab classes available for registration. For instance, MT1A students should register their lab groups in either lab class MT1A.1 or MT1A.2.
- You must register your lab group via Lisam until **29 of August, 15:00**.

Practical lessons

Practical lessons of 4h (*övningar*) take place in the computer lab rooms and are similar to a lab/HA. During these lessons you'll have the opportunity to practice programming by solving practical exercises under the guidance of a course teacher. There is no *redovisning* of the practical lessons' exercises.

Practical lessons are also an opportunity for students to put forward questions. However, neither we make repetitions of the lectures during practical lessons nor they can be used to solve lab exercises.

IT-support for students

If you experience problems with your LiU account, equipment or software in the lab rooms then you should contact the [LiU IT-services and support](#). Note that as user of the lab rooms, it is your duty to report to the LiU IT-services any problems you detect with the equipment or software installed in these rooms. You can also call [013-282828](tel:013-282828) or email the [help desk](#).

If you need help with the Lisam system then visit this [web page](#) or call the helpdesk service.

There is no point to contact the staff of the course about Lisam or other IT-related problems because we cannot help you with this type of issues. Thus, these emails are simply ignored.

Important dates and deadlines

Important dates related to the course activities and deadlines are summarized on the table below and posted also on the [course website](#).

Event	Deadline
Course start	Week 35
Register lab group	29 of August, 15:00
Course re-registrations (“omregistrering”)	6 of September
Dugga 1	09/09 – 12/09 (12:00)
Dugga 2	23/09 – 26/09 (12:00)
Dugga 3	07/10 – 10/10 (12:00)
Presenting labs	Week 42
Final computer exam	28 of October
Claim lab points	25 of November
Presenting late labs after course ending	Week 1, 2023 email the course responsible not later than the end of week 50, 2022
