

Introduction to Mathematical Software & Programming CELEN087

Module Handbook

Credits: 10

This handbook contains important information about the module. Read it in full at the beginning of the semester and re-read it whenever you have a question. If you do not find an answer to your question here, contact the module convenor or your tutor.



**University of
Nottingham**
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1. Who is teaching on this module?

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You can find the most updated office hour information on Moodle.

2. What is this module about?

Introduction to mathematical software and programming essentials are covered in this module via lectures and lab sessions.

- MATLAB is an industry-leading software, a high-performance language for technical computing primarily used in numerical computing. It is also useful for the plotting of graphical data and basic programming structures.
- LaTeX is a high-quality mathematical typesetting software to create professional-looking documents.
- GeoGebra is an interactive mathematical software for representing geometric objects and sketching graphs of functions.

3. What will I learn on this module?

This module provides underlying mathematical topics and concepts essential for better understanding of basic programming constructs with three software packages: MATLAB, LaTeX, and GeoGebra.

4. What are the learning activities on this module?

Lab sessions: There will be 2-hour lab session every week of teaching in UNNC computing lab rooms. Lab tutors will guide and support students working on *Lab Worksheets*.

Self-study: At UNNC we emphasise self-study. It has been calculated that this module will take up to 100 hours of your time including approximately 20 hours of lab sessions. As such, we expect that you will contribute around 8 hours towards practicing topics covered lab sessions every week. You are encouraged to attempt as many questions as you can on the *Homework Exercise Sheet* for your self-study, and refer to further exercises from any of the recommended resources.

Office hours: You are encouraged to take advantage of office hours offered by teaching staff, to get help on difficulties you may have with regard to your exercise questions. Information about the Office Hours is available on Moodle.

Tentative teaching schedule:

Lab sessions	Topics
Session 1	Introduction to MATLAB; Basic commands and built-in functions
Session 2	Script file; 2-d plot; logical array
Session 3	IF Control Flow and For/While loop Iteration
Session 4	User-defined functions and examples
Session 5	Comprehensive programming examples
Session 6	Introduction to LaTeX; Basic structures; Lists
Session 7	Tables and Figures; Document decorations
Session 8	Math environments for typesetting mathematical contents
Session 9	Introduction to GeoGebra
Session 10	Practical exam Training and Mock Exam
Revision session	Feedback on Assessments; Q&A

5. How is the module assessed?

In-class Tests	
Weighting	2 tests, each worth 10% of the overall module marks
Date and Time	Test 1: (in-class) w/c 17 th March 2025 Test 2: (take-home) released on 25 th April 2025, due by 14:00 30 th April 2025
Duration	Test 1: 20 minutes (in-class) Test 2: 3 working days (take-home)
Topics	Test 1: MATLAB Test 2: LaTeX
Type of assessment	Practical tests with access to computers
Notes	Test detail will be given one week before the scheduled time.

Mid-Semester Exam

Weighting	30% of the overall module marks
Date and Time	10 th April 2025
Duration	60 Minutes
Topics	MATLAB
Type of assessment	Written exam without access to computers
Notes	No calculators are permitted in this examination

Final Exam	
Weighting	50 % of the overall module
Date and Time	Scheduled during 2025 University Exam Weeks
Duration	120 Minutes
Topics	Full syllabus
Type of assessment	Practical exam with access to computers
Notes	<p>The final examination will be an in-lab practical exam. Students need to work on three software packages to solve the questions, and submit required files onto a designated dropbox.</p> <ul style="list-style-type: none"> • No calculators and Internet access are permitted in this examination • Dictionaries are not allowed with one exception. Those whose first language is not English may use a standard translation dictionary to translate between that language and English provided that neither language is the subject of this examination. Subject specific translation dictionaries are not permitted

6. What are the assessment criteria?

This module is assessed by two tests, one mid-semester exam and one final exam. Students need to obtain 40% of the overall module marks to pass.

7. What do I need to know about feedback?

Feedback in CELE is a two-way process and takes many forms. Depending on the learning task, you will receive written or oral feedback to help you improve. Sometimes the feedback will be offered to the whole class of students: this general feedback is no less important for your learning. Sometimes people become defensive when receive feedback meant to help them improve. Try to fight against negative emotions and make the most of any comment meant to help you improve. It is your responsibility to reflect on your tutor's comments and set goals. Feedback is not always negative! Tutors will also highlight

what is good and must continue. You will also have plenty of opportunities to give feedback to your tutors through Early Module Feedback and the SET/SEM surveys at the end of the semester and students' participation in CELE's Learning Community Forum (you can read the Student Handbook for more information on these processes). Equally important, you are always welcomed to speak with your tutor during office hours to share your feedback.

For the mid-semester exam, feedback in form of sample methods for the questions would be provided after the exam (this would aid your preparation for the final examination). After the final examination, a statement of the common errors made would be published on Moodle. You may also use of the office hours to further discuss general feedbacks with tutors.

8. Where can I find the module readings and materials?

Module information and learning materials are available on its Moodle Page.

Lab notes: These are the tutorial guides for the lab sessions.

Lab worksheet: These contain exercises you need to work on during the lab sessions.

Homework Exercise sheets: These are collections of problems related to the topics treated in that week. It is highly expected that you use this resource for additional practice.

Supplementary materials: These are additional online resources for you to further develop your skills learned upon different software packages.

9. What happens if I fail?

Resits for the module comprises a practical exam (with 100% weighting) taken within the University period of resit examinations, provisionally scheduled for August 2025.

10. Independent Learning Week

CELE has named the week commencing on TBC as your Independent Learning Week. Independent learning is not limited to this week of course as it is a requirement throughout the semester. What makes Independent Learning Week special is that there are no scheduled classes and your tutors will encourage you to engage in learning activities that can be carried out both individually and in group. Some of you may also have mid-term exams falling into this week. Besides, you can set your own learning goals for the week. The goal is for you to use this week to reflect on what learning independently outside the classroom means to you, sharpen your study skills, and reinforce your preparation moving toward the end of the semester. To help you:

- 1) You will find recommended learning activities, to undertake individually or in group on the Moodle page of your module.
- 2) Classrooms will remain booked at the usual times in case you need a place where to meet with other students to work on the module's activities.

3) Tutors will remain available during office hours (check Moodle for their updated time slots).

11. Other important information about this module

Dictionaries: In written examinations, dictionaries are not allowed with one exception. Those whose first language is not English may use a standard translation dictionary to translate between that language and English provided that neither language is the subject of the examination. Subject-specific translation dictionaries are not permitted. No electronic devices capable of storing and retrieving text, including electronic dictionaries, may be used.

Calculator: No calculators are permitted in all assessments of this module.

12. Important policies to know

Academic misconduct

There is **zero tolerance** of Academic Misconduct for all students studying at UNNC. Once academic misconduct is confirmed, it will result in appropriate penalties. Misconduct is any inappropriate activity or behaviour by a student which may give that student, or another student, an unpermitted academic advantage in marked assessment. This includes (and is not limited to) plagiarism (appropriating someone else's texts or ideas without proper referencing), asking someone else to complete one's assessments, sharing your answers to individual quizzes with other students.

Misconduct Policy:

<https://www.nottingham.ac.uk/qualitymanual/assessment-awards-and-deg-classification/pol-academic-misconduct.aspx>

Misconduct Procedure (UNNC):

<https://www.nottingham.edu.cn/en/academicservices/academic-misconduct/academic-misconduct.aspx>

Extenuating Circumstances (EC)

If you **miss an exam or other form of assessment** on medical or acute personal grounds, please follow the procedures to apply for EC.

Extenuating Circumstances Procedure (UNNC):

<https://www.nottingham.edu.cn/en/academicservices/unnc-extenuating-circumstances-procedure/unnc-extenuating-circumstances-procedure.aspx>

Attendance policy

Please remember that **all classes are compulsory**. If you have to ask for leave you need to contact The Hub via TheHub@nottingham.edu.cn and provide evidence. Missing classes without authorized reasons will be recorded as **Absence** which may jeopardize your study.

A copy of the policy is posted on CELE Common Space under Policies and Regulations:

<https://moodle.nottingham.ac.uk/course/view.php?id=39383>

If any of these links results broken, you can contact CPSO for assistance:

cpsos@nottingham.edu.cn.

Artificial Intelligence use on this module

Students on this module are expected to abide by the UNNC Artificial Intelligence Student Use Policy. It is the student's responsibility to familiarise themselves with the policy and seek clarification from the Module Convenor if in doubt. Failure to comply with the policy can be considered academic misconduct and may result in disciplinary action according to the University of Nottingham Quality Manual.