CD/CN4001

Software Development

Term(s): TERM 1

MODULE GUIDE 2021/22

University of East London

School of Architecture, Computing and Engineering

ACCESSIBILITY NOTICE

Click here for guidance on viewing this document in Word's Immersive Reader

CONTACT INFORMATION

MODULE LEADER

Name: ***DR AARON KANS***

Email: a.kans@uel.ac.uk

Tel: ***020 8223 2593***

Room Number: ***EB.1.104***

ADDITIONAL CONTACT(S)

Name: ***Amin Karami, Bilyaminu Auwal Romo, Mike Kretsis, Lasana Kamara, Jagadeesh Bondela, Kazi Tansen***

Role: ***Lab tutors***

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Tel: ***various***

Room Number: ***various***

The Module Leader/Other Tutors and Contact Details were correct at point of publication. You will be notified of any changes.

MODULE INTRODUCTION

This is a level four module within the Computing Subject Area and is a core requirement of the following courses.

BSc Computer Science
BSc Computer Science with Education and QTS
BSc Computing for Business
BSc Cyber Security and Networks
BSc Data Science and Artificial Intelligence
BSc Digital & Technology Solutions (Apprenticeship)

This module covers fundamental programming concepts using the Java programming language and assumes no previous knowledge of the subject.

The most important thing to say is that good engagement on this module is *absolutely essential* for success. You will see in the ASSESSMENT section of this module guide that half of the marks for this module consists of weekly programming tasks, tackled during your practicals. It is therefore essential that you engage with the weekly practicals in order to get your marks.

The feedback from previous students was very positive on this module and as long as you engage with classes, there is no reason why you should not be very successful on this module.

Along with the course text, that will be made available to you, all the teaching support material you need is on an accompanying **Moodle** site, and it is important that you consult this site regularly throughout the course. **Microsoft Teams** will be our platform for real-time communication.

The module will be delivered through a combination of **pre-recorded lecture videos** I have made for you (available on your Moodle site), **live on-line lecture Q&As** with myself (via the Microsoft Teams site) and on-campus lab sessions with me and my module team.

In addition, your Year Tutors (Bilyaminu Romo and Umar Ismail) will run a **weekly get together on campus** with you all to check on your progress, during which myself, your lecturers and course leaders will also be visiting you.

I am very much looking forward to teaching you and meeting you all soon – good luck with this module!

Dr Aaron Kans

(Module Leader)

MODULE AIMS AND LEARNING OUTCOMES

Aims of the module	Learning outcomes for the module
This module provides students with the skills necessary to design, implement and test software applications using a high-level programming language. The module is taught from first principals and assumes no prior knowledge of the subject. The module focuses on programming fundamentals such as variables, control structures, arrays and the procedural programming methodology and then goes on to introduce the object-oriented programming concepts of objects, classes and inheritance. .	At the end of this module, students will be able to: • explain the activities involved in producing a software application • explain the need for, and produce, suitable software documentation • identify the appropriate programming concepts to solve programming problems • design and implement programs using an appropriate design and modelling methodology • design and implement programs in a suitable high level language • make use of a variety of software algorithms • find solutions to complex problems .

KEY INFORMATION

The module will be delivered through a combination of **pre-recorded lectures, live on-line Q&A sessions** and **laboratory based practical work**.

Pre-recorded lecture videos will be used to introduce both the theoretical and practical aspects of the course. These will be made available to view **the week before the associated practical lab sessions.**

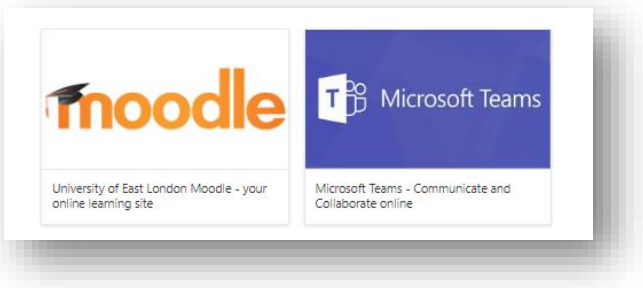
The **on-line live Q&A sessions** will take place with me on MS Teams every Monday (from 10-11am), where I will review the lecture content with you and take any questions that you might have. Prior to the live Q&A you will see a reminder on your timetable to watch the pre-recorded lecture (from 9-10am) if you have not already done so before that time.

You will then be **split into groups** to attend a **two-hour practical session** per week (the day depends upon which group you have been placed in). You will be involved in an assortment of practical tasks during the lab sessions and these sessions will be used to reinforce the lecture material and put the theory into practice.

If you have been given permission from your course leader to study remotely (for example if you need to self-isolate), a **weekly online lab session** has been timetabled to ensure you can continue engaging with your studies.

The majority of your time on this module will be spent in private study. You are expected to use this private study time to watch the lecture videos, and carry out the suggested reading for that week, and prepare for practicals as requested by teaching staff.

As with all modules at UEL, extensive use will be made of an on-line virtual learning environment called **Moodle** and a communication tool called **Microsoft Teams**



You can access all your Moodle and Teams sites via UEL's **TrackMyFuture** portal

https://trackmyfuture.uel.ac.uk

You can also directly access your **CN/CD4001 Software Development Moodle site** by going to the following link:

https://moodle.uel.ac.uk/course/view.php?id=42650

The **Moodle** site will contain a variety of information and resources including teaching and learning materials (recorded lecture videos, lecture slides, lab exercises, etc), a calendar of important events and coursework deadlines and important news regarding the operation of this module. You should check Moodle regularly! If you find that you are not able to access the Moodle site email me and I will add you.

You can directly access your **CD4001 Software Development Teams** site by going to the following link

https://bit.ly/3A9XpJA

If you find you are unable to join the Teams site you can use the following joining code to self-enrol:

g3mh28q

The online Q&As and the online lab for those forced to study remotely will both be delivered on the MS Teams site.

STUDENT FEEDBACK

a) The following feedback was received on the module leader, Dr Aaron Kans, when he won the coveted "**Best UEL Lecturer**" award as voted for by UEL students:

"Aaron Kans is very engaging with the Lecture Slides he presents in the lecture. He knows what he's teaching and his published book about Java in Two semesters gives us a great confidence about his capabilities."

"Dr Kans has been an inspiration and delight. He is respected and loved by all of his students. His classes are clear and interesting, and his competence is awe inspiring. It was a pleasure, and a privilege, to be taught by him."

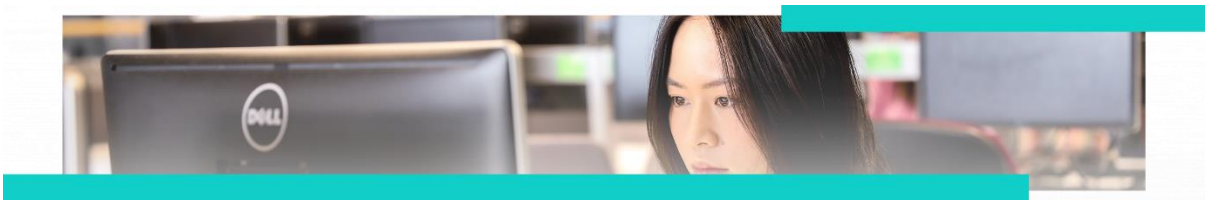
"He inspires me to be patient and listen, he has the best listening skills as he lets every student in the class have their moment, he does not focus on the smart ones, but tries to push people who show effort to be better making you feel special and willing to learn more."

"He is always happy to help and explain his subject again to make sure you understand. He always replies to emails about the module."

b) Opportunities for student feedback on the module

Students can provide feedback at programme committee meetings and by making use of a feedback questionnaires at the end of the module.

ASSESSMENT INFORMATION



You must achieve an overall module mark of **40%** in order to pass this module. This module's assessment consists of a **portfolio of work**.

50% of the module marks will be allocated to a set of **on-going practical programming tasks** that take place within your lab sessions. Your tutor will support you in completing many of your tasks, but the last task will be left for you to complete on your own. A further 50% of the module marks will be equally split between two short (30 minutes each), **quizzes**. One quiz will be mid-term and the other the end of term. These quizzes will involve a combination of multiple-choice questions and small questions with short answers.

This portfolio of assessment tasks are intended to test the following learning outcomes:

- Explain the activities involved in producing a software application
- Explain the need for, and produce, suitable software documentation
- Identify the appropriate programming concepts to solve programming problems
- Design and implement programs using an appropriate design and modelling methodology
- Design and implement programs in a suitable high-level language
- Make use of a variety of software algorithms
- Find solutions to complex computing problems using the technique of problem decomposition

Assessment	**Schedule**
Weekly Assessed Practical Tasks (4 marks each = 32 marks)	Lab sessions in teaching weeks 3, 4, 5, 6, 7, 8, 9 and 10
Module Quiz 1 (25 marks)	Available in Teaching Week 6 and to be completed by **5th November 2021** (via Moodle)
Module Quiz 2 (25 marks)	Available in Teaching Week 11 and to be completed by **10th December 2021** (via Moodle)
Final Assessed Practical Task (18 marks)	Submit by **16th December 2021** (via Moodle)
RESIT submission deadline	A date in April 2022 TBC

We strongly suggest that you try to submit all coursework by the deadline set as meeting deadlines is expected in employment. However, in our regulations, UEL has permitted students to be able to submit their coursework up to 24 hours after the deadline. Coursework which is submitted late, but within 24 hours of the deadline, will be assessed but subject to a fixed penalty.

The impact of the fixed penalty on your result will depend what level of study you are in and when you began your course at UEL. For full details see Part 3, Manual of General Regulations at

https://www.uel.ac.uk/about/about-uel/governance/policies-regulations-corporate-documents/student-policies/manual-of-general-regulations .

Please note that if you submit twice, once before the deadline and once during the 24-hour late period, then the second submission will be marked and the fixed penalty applied. This rule only applies to coursework. It does not apply to examinations, presentations, performances, practical assessments or viva voce examinations. If you miss these for a genuine reason, then you will need to apply for extenuating circumstances, or accept that you will receive a zero mark.

As well as this, **summative assessment** (i.e. assessment that counts towards your final module mark), there will also be regular in-class quizzes to provide you with feedback in the form of **formative assessment** (i.e. assessment that does not count towards your final module mark).

Resit Assessment

If you do not pass your module at the first attempt you will have an opportunity to re-submit your practical tasks and/or take a resit quiz in January. The mark for all resits are capped at 40%.

LATE SUBMISSIONS

We strongly suggest that you try to submit all coursework by the deadline set as meeting deadlines is expected in employment. However, in our regulations, UEL has permitted students to be able to submit their coursework up to 24 hours after the deadline. The deadline will be published in your module guide. Coursework, which is submitted late, but within 24 hours of the deadline, will be assessed but subjected to a fixed penalty of 5% of the total marks available (as opposed to marks obtained). However, you have to **be very careful when you are submitting your assessment**. If you submit your work twice, once using the original deadline link and then again using the late submission link, your assignment will be graded as late with the 5% deduction.

Please note that if you submit twice, once before the deadline and once during the 24 hour late period, then the second submission will be marked and 5% deducted.

This rule only applies to coursework. It does not apply to examinations, presentations, performances, practical assessments or viva voce examinations. If you miss these for a genuine reason, then you will need to apply for **extenuating circumstances**, or accept that you will receive a zero mark.

Extenuating Circumstances are circumstances which:

- impair your examination performance prevent you from attending examinations or other types of assessment, or
- prevent you from submitting coursework or other assessed work by the scheduled deadline date, or within 24 hours of the deadline date

Such circumstances rarely occur and would normally be:

- **unforeseeable** - in that you could have no prior knowledge of the event concerned, and
- **unpreventable** - in that you could do nothing reasonably in your power to prevent such an event, and
- expected to have a **serious impact** on performance

You can make an application for extenuating circumstances by following this link: https://uelac.sharepoint.com/StudentSupport/Pages/Extenuation-information.aspx

RETURN OF WORK AND FEEDBACK

Arrangements for the publication of results is stated in the Course Handbook. Formal results are ONLY available in UEL Direct, and will be published within 8 working days of the Board, where results are formally confirmed. Any other results are provisional / indicative but not approved.

You will receive feedback throughout your course through the following:

X	one-to-one or individualised *(i.e. tutorials, conversations with supervisors, or individualised comments on assignments)*
X	informal feedback *(i.e. through in-class discussions or online forums)*
X	self-evaluation *(i.e. online checklists or reflective submissions)*
X	Moodle Quizzes

Feedback and students' marks should be provided within 15 working days of the due date for summative work (i.e. work that counts towards the final course grade) and formative work (i.e. work that is developmental and designed to help you improve).

Whilst feedback will be given on draft/formative work, it shouldn't be assumed that every aspect will be identified.

ONLINE SYSTEM FAILURES

If you experience a problem submitting your work online, you should notify your lecturer/tutor by email immediately. However, deadlines are not extended unless there is a significant systems problem with Turnitin. UEL has specific plans in place to address these issues. If UEL finds that the issue with the system was significant, you will receive an email notifying you of the issue and that you have been given a 24 hour extension. **If you don't receive any email that specifically states you have been given an extension, then the original deadline has not been changed**.

Best advice: Don't wait until the last minute to submit your assessments electronically.

- A guide to submitting your work through **Turnitin**
- A guide to viewing and understanding the similarity report in **Turnitin**
- Guide to **Extenuating Circumstances**
- **Assessment & Feedback Policy**

TEACHING SCHEDULE

CN4001/ CD4001 Software Development Teaching Schedule 2021/22*

TEACHING WEEK 1: w/c (27.09.2021)

Topic 1	
Subject	**Module Introduction & Overview**
Aims	To provide you with an **outline of the module** and to introduce you to the concept of **software development.** .
Prepare	Recorded Lecture, on-line Q&A, Module Guide
LAB	Meet your lab tutor and fellow students, check your Moodle and Teams access

TEACHING WEEK 2: w/c (04.10.2021)

Topic 2	
Subject	**Programming with Java and JDoodle**
Aims	To look at how to **Java programs** are written, compiled and run To look at how to use the **JDoodle** IDE.
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 1
LAB	A **tutor directed exercise** in writing a simple "Hello World" program in Java using JDoodle

TEACHING WEEK 3: w/c (11.10.2021)

Topic 3	
Subject	**Building Blocks**
Aims	To look at the basic building blocks of Java programs – **variables**, **input** and **output**
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 2
LAB	A **tutor directed assessed exercise** in writing a simple Java program that uses variables, input and output statements **(4 marks)**

* Subject to change

TEACHING WEEK 4: w/c (18.10.2021)

Topic 4	
Subject	**Making Choices**
Aims	To look at the use of **if** and **if else** statements to make **choices** in Java programs. To look at the use of **nested if else** statements and the **switch** statement to make **multiple choices** in Java programs
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 3
LAB	Two **tutor directed assessed** exercises in writing a Java program that makes choices **(4 marks – 2 marks each)**

TEACHING WEEK 5: w/c (25.10.2021)

Topic 5	
Subject	**Programming with Loops**
Aims	To look at the use of **for** loops to repeat sections of code in Java programs. To look at the use of **while** and **do while** loops to repeat sections of code in Java programs.
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 4
LAB	A **tutor directed assessed** exercise in writing a Java program that makes use of loops **(4 marks)**

TEACHING WEEK 6: w/c (1.11.2021)

Topic 6	
Subject	**Structured Programming**
Aims	To look at the **structured programming** paradigm, that makes use of **methods** to break a large Java program into manageable blocks To look at the use of **parameters** and **return types** to send data to and from methods To look at **overloaded** methods
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 5
LAB	A **tutor directed assessed exercise** in writing a Java program that makes use of methods to break up a large program into smaller blocks. **(4 marks)**
MODULE QUIZ 1	**30 minute on-line module review quiz 1 (25 marks)** **COMPLETE BY FRIDAY 5th NOVEMBER (by 4pm)**

TEACHING WEEK 7: w/c (8.11.2021)

Topic 7	
Subject	**Arrays**
Aims	To look at the use of **arrays** in Java to store **large collections** of data
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 6
LAB	A **tutor directed assessed exercise** in writing a Java program that makes use of arrays. **(4 marks)**

TEACHING WEEK 8: w/c (15.11.2021)

Topic 8	
Subject	**Object Oriented Programming**
Aims	To introduce the **object-oriented** programming paradigm (**classes** and **objects**) and to compare this with the **structured approach**. To look at how to **create** and **send messages** to **objects** in Java
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 7
LAB	A **tutor directed assessed** exercise in writing a Java program that makes use of objects. **(4 marks)**

TEACHING WEEK 9: w/c (22.11.2021)

Topic 9	
Subject	**Implementing Classes**
Aims	To look at how to **design** classes using the **UML** modelling language and how to **implement** those **class** designs in **Java**.
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapter 8
LAB	A **tutor directed assessed** exercise in writing a Java class. **(4 marks)**

TEACHING WEEK 10: w/c (29.11.2021)

Topic 10	
Subject	**Advanced Concepts 1**
Aims	To look at the use of **multi-dimensional arrays** in Java to store **large collections** of data
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapters 6
LAB	A **tutor directed assessed** exercise in writing a Java program that uses multi-dimensional arrays. **(4 marks)** Work on a final Self-Directed Task **(18 marks)**

TEACHING WEEK 11: w/c (6.12.2021)

Topic 11	
Subject	**Advanced Concepts 2**
Aims	To look at how to **reuse** and **extend** existing classes by making use of **inheritance** in **Java**. To look at the use of **interface** classes to develop **contracts** in Java.
Prepare	Recorded Lecture, on-line Q&A, Charatan and Kans, chapters 9 & 13
LAB	Work on a final Self-Directed Task **(18 marks)** Prepare for last module Quiz
MODULE QUIZ 2	**30 minute module review quiz 2 (25 marks)** **COMPLETE BY FRIDAY 10th DECEMBER (by 4pm)**

TEACHING WEEK 12: w/c (13.12.2021)

Topic 12	
Subject	**END OF TERM MODULE REVIEW**
Aims	Review module and progress
Prepare	Recorded Lecture, on-line Q&A
LAB	Work on a final Self-Directed Task **(18 marks)** **Complete any missing lab tasks**
SUBMIT LAST TASK	**Submit final Self-Directed Task (18 marks)** **COMPLETE BY THURSDAY 16th DECEMBER (by 4pm)**

ATTENDANCE REQUIREMENTS

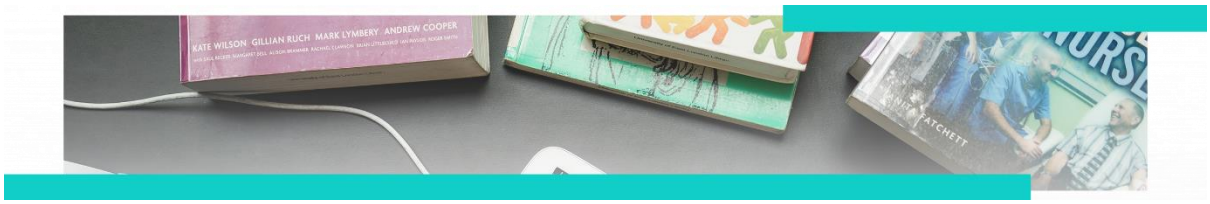
You are expected to attend all scheduled sessions, including lectures, seminars, group work and tutorials – whether online or face to face.

You are expected to be punctual, to be respectful of others' time as well as your own, to participate whilst present, to put in time to study between classes, to prepare for taught sessions and to be active participants in both group work and your own learning experience.

MORE INFORMATION

- Link to your **personal timetable**
- Link to the **Docklands Campus Map**
- Link to the **Stratford Campus Map**
- Link to the **Guide to Room Numbers**

REFERENCING



As a student you will be taught how to write correctly referenced essays. UEL's standard **Harvard referencing** system is from *Cite Them Right*. Cite them Right is the standard Harvard referencing style at UEL for all Schools, however professional body requirements will take precedence for instance the School of Psychology which uses the APA system.

MORE INFORMATION

- Link to the Student Handbook page on *Cite Them Right*
- Video guide to using referencing software Zotero
- Link to the Student Handbook page on Academic Misconduct and Plagiarism

ASSESSMENT FEEDBACK

Feedback is crucial for your learning and it is an important part of the academic cycle. It tells you what the strengths are of your work, what its weaknesses are and how it can be improved.

WHY IS FEEDBACK IMPORTANT?

Feedback is the most effective way to:

- Help you understand how to succeed in your assessments;
- Help you produce better work for the future;
- Signpost you to other resources for assistance.

If you pay attention to feedback, particularly where the same comment is made in several modules, you can use the information to improve.

WHERE DO I GET FEEDBACK?

- When a tutor comments on your answers in seminars/lectures/workshops
- General comment on assessment performance in lectures and seminars
- General comment on questions prepared for seminars
- When another student makes comments on your presentation
- When you produce practice questions for a tutor who gives comments
- When you receive written comments on your work submitted either as coursework or exam
- When you look at general feedback on module performance on UEL Direct.
- When you see your Academic Adviser with all your assessment feedback for general advice. You should always do this after each assessment period.

MORE INFORMATION

- Link to information about the **Centre for Student Success**

READING AND RESOURCES

CORE:

Charatan, Q. and Kans, A. (2019) *Java in Two Semesters, featuring JavaFX.* 4th Edition (Springer)

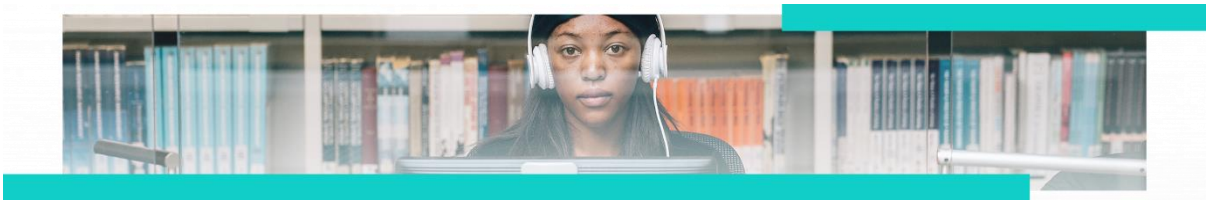
Your core text will be made available to you free on-line on the Kortext© platform.

OTHER RESOURCES AND FORMS:

The programming language used during this module is **Java** and the tool used to write Java programs in the practical labs will be **JDoodle**, which is a free on-line tool available here:

https://www.jdoodle.com/online-java-compiler/

KEY LINKS



- **Academic Appeals**
- **Academic Integrity**
- **Academic Tutoring**
- **Assessment and Feedback Policy**
- **Bus Timetable**
- **Centre for Student Success**
- **Civic Engagement**
- **Complaints procedure**
- **Counselling**
- **Disability support**

- **Engagement & Attendance Policy**
- **Equality and Diversity Strategy**
- **Extenuation Procedures**
- **Frequently-Asked Questions**
- **Health and Safety**
- **IT Support**
- **Library Archives and Learning Services**
- **Manual of General Regulations**
- **Mentoring**
- **Track My Future**