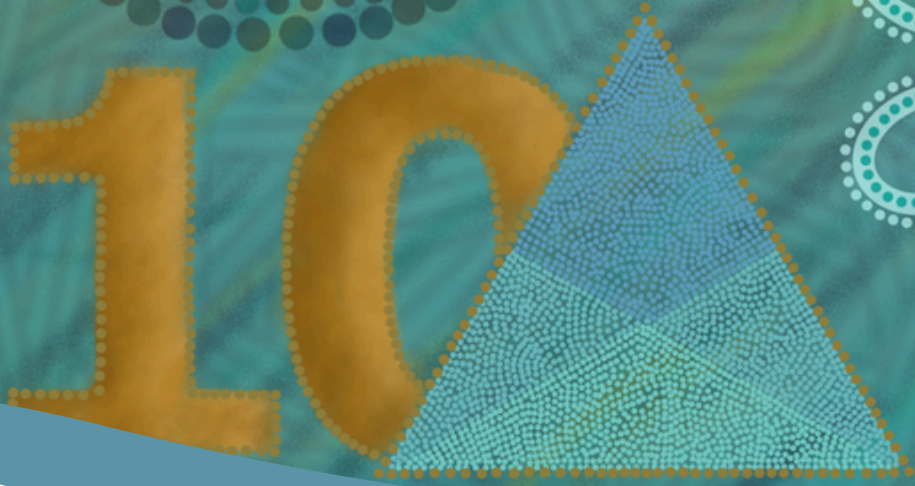


HSC STUDY DAY SERIES



2025

SOFTWARE ENGINEERING QUESTIONS & ANSWERS

Please note: These responses are based on the presenters' knowledge and understanding at the time of publication.

As Software Engineering is a new HSC course and the first examination has not yet occurred, some answers may contain minor inaccuracies or reflect current interpretations of the syllabus.

<https://aurora.schools.nsw.gov.au>



IGNITING NEW WAYS OF LEARNING: CELEBRATING 10 YEARS



2025

SESSION 1: DIGITAL EXAMINATION

Q: I can touch type on a dvorak keyboard but not qwerty - will we be able to change the keyboard layout in the exam?

A: As far as I'm aware your keyboard layout will work perfectly fine. This is handled by the OS and is not a function of the exam system. I would suggest you ask your teacher to set up the familiarisation exam for you to try it out and verify.

Q: I find it difficult to write and interpret SQL, how can i quickly learn before trials?

A: There are a few online sites that would be ideal to look at. Two which are a good place to start are :

https://www.sqlzoo.net/wiki/SQL_Tutorial

(Only the first few lessons are needed to cover the content required for Software Engineering)

<https://www.w3schools.com/sql/>

https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_all

(has a set of sample tables that you can practice queries on)



2025

SESSION 1: DIGITAL EXAMINATION

Q: If there are no modules that can be added, will that mean questions that use things such as random numbers not be tested? Or will we need to know how to generate our own?

A: You will not need to know how to generate your own random numbers. Questions should focus on general processing (and within the bounds of what is possible with the base Python functionality).

Q: Will default python libraries be in the exam or be able to be used? (e.g. os, math, sys, etc.)

A: No they will not. Questions will also focus on general processing and not require any of the features that these provide.

Q: What are we able to change in regard to fonts, colour, etc

A: You can change the font size, the colour and the background colour. I would suggest asking your teacher to set you up so that you can log into the familiarisation exam where you can experience the possibilities but also find which combination suits you best.

Q: Is there somewhere we can view figures such as that pie chart after the presentation?

A: Yes, there is a handout which is available for your teacher to download that contains the slides from the presentation.



2025

SESSION 1: DIGITAL EXAMINATION

Q: Was the 2024 exam online?

A: No, in 2024 the students sat Software Design and Development for the last time and it was a pen and paper exam.

Q: How long is the exam?

A: The exam runs for 2 hours and 30 minutes. The first 10 minutes of this are reading time; however, you only have 2 hours and 20 minutes of working time.

Q: Will it be basic SQL or SQLAlchemy?

A: It will not be SQLAlchemy, just vanilla SQL. If you look at the sample questions provided in the relevant section of the handout you can see the style of content. You can also do the sample exam to get an idea as well.

Q: Where can I find past papers for Software

A: There are only past papers available for the previous subject (Software Design and Development). These can be found at :

<https://educationstandards.nsw.edu.au/wps/portal/nesa/resource-s-archive/hsc-exam-papers-archive/software-design-and-development/software-design-and-development-2024-hsc-exam-pack>

(scroll down on the page to see other papers)

Not all the questions will be relevant but you should be able to identify questions that overlap with the current syllabus.



2025

SESSION 2: SECURE SOFTWARE ARCHITECTURE

Time leak side-channel attack:

Watch the video of the exploit. Note that the attack has uncovered two vulnerabilities, one the time leak and two that users are not case sensitive.

[Time_Leak.mp4](#)

Q: Will built-in Python libraries (e.g. math, os, sys) be able to be used or appear in the exams?

A: No, in 2025 (may change in the future) the IDE does not allow any imports, including *sys* or *time*. I suggest you look at the pattern of Python questions provided in the familiarisation and sample examinations from NESA as a guide for the type of Python implementations you may be required to do.

Q: Will we be required to do Black Box, White Box or Grey Box testing for the Software Exam

A: Not as a full test experience, but you may be given the details of a Black Box or Grey Box test and asked questions about it. Alternatively, you may be given some Code and asked to conduct a code review, which is technically a form of white-box testing. You should have a very good understanding of the differences.



SESSION 2: SECURE SOFTWARE ARCHITECTURE

Q: Could you go in depth into the white, black and grey box testing?

A: The best way to think of the three testing types is what does it look practically:

White Box: The app is not running, and the developer does a line-by-line review of the source code to identify any potential vulnerabilities. In this process, even a potential vulnerability is flagged for full code review and penetration testing. White box is SAST.

Black Box: The app is running and the tester only has access to the interface of the application. Anything that crosses the interface (console, HTML, JS, error statements) can be used. The tester will use manual and automated processes such as pen testing to find exploits. The tester does not have any access or insight to the code. Black Box is DAST with no access or insight to the code/backend)

Grey Box: The app is running and the tester has access to the terminal/console, logs and backend. They can run Black box tests but also view how the backend responds, plus look at the code base itself. Grey Box Testing is DAST with SAST insight.



2025

SESSION 2: SECURE SOFTWARE ARCHITECTURE

Q: Can you provide an example for a vulnerability in Javascript? Like would it just be the absence / improper password validation or could it involve database calls?

A: You won't be examined on a JS vulnerability beyond Cross Site Scripting. But to help you understand invalid forwards and redirect this is the same vulnerability in node.js:

```
router.all('/success.html', (req, res) => {  
  // Handle GET with url parameter for redirect  
  if (req.method === 'GET' && req.query.url) {  
    return res.redirect(302, req.query.url);  
  }  
})
```

Q: Would you have to run a vulnerability assessment as a question in the hsc or trials?

A: Not end to end, but it's a significant dot point, so you should be able to:

- Describe the overall process and aim of a Vulnerability Assessment.
- Compare it to other secure processes like code review
- Know where it could be used in the Secure Software Development Lifecycle
- Apply it as a process in response to a stimulus about security



2025

SESSION 2: SECURE SOFTWARE ARCHITECTURE

Q: May we be required to write python scripts involving sockets and requests?

A: No, because they require imports and the complexity is beyond the time frame of a 2.5 examination. I suggest you look at the pattern of Python questions provided so far in the NESA familiarisation and sample examinations as a guide for the type of Python implementations you may be required to do.

Q: I haven't done/learnt much SQL since the start of this year. What can I do to quickly get my SQL prepped before trials? are there any good courses.

A: No better time than now, I suggest you do the SQL tutorial on [w3schools](#) you should know the commands, especially table joins.



2025

SESSION 3: PROGRAMMING FOR THE WEB

Q: Will there be a formula sheet with different python function?

A: No,

Q: Is .sort() part of the built in functions usable in the exam?

A: Yes, I believe it is. Best thing is to ask your teacher to set up a familiarisation exam and tinker in the code box for a coding question to see what is possible.

Q: Do we need to remember port numbers for these protocols?

A: I would say no but I am not 100% certain.

Q: During the HSC, is there a chance we will be asked questions about any and all protocols we have looked at during the course?

A: I would say that yes, if it is in the syllabus and we have learnt about it then it can be asked about in the exam.

Q: For SQL questions, is it likely that NESA will require uppercase keywords for marking?

A: No. I would say not.



2025

SESSION 3: PROGRAMMING FOR THE WEB

Q: Does syntax for html and CSS have to be perfect for full marks in hsc exam?

A: I'm not sure to what extent they will ask you to write HTML and CSS in the exam but I would suggest that if it is then you could only get full marks with very minor (inconsequential) imperfections in the syntax.

Q: Can you provide some websites to practice SQL and joining tables please?

A: There are a few online sites that would be ideal to look at. Two which are a good place to start are :

https://www.sqlzoo.net/wiki/SQL_Tutorial

(Only the first few lessons are needed to cover the content required for Software Engineering)

<https://www.w3schools.com/sql/>

https://www.w3schools.com/sql/trysql.asp?filename=trysql_select_all

(has a set of sample tables that you can practice queries on)



2025

SESSION 4: SOFTWARE AUTOMATION

Q: To what extent will we be tested on different types of regression in the HSC:

A: You will be tested on your:

- Knowledge and understanding of the individual algorithms
- Application of the algorithms to common problems
- Comparing or selecting algorithms in common problems/data

Q: Can you talk about integrals?

A: Integrals in the machine learning are above the syllabus. They are used in advanced neural network activations, and Integrals are foundational in probability and statistics for classification problems. Integrals can also be used to evaluate the variance in data.

Q: Can we use anything from the 2024 syllabus?

A: The 2025 HSC exam will be on the current Software Engineering Syllabus. The Year 11 course is not in the HSC Examination. However, there is some crossover specifically with the Software Engineering project, where you will be examined on your knowledge of the system models and pseudocode for selection and iteration from the course specifications. As the first two topics in Year 11 are foundational, they will be examined in the context of HSC concepts.



2025

SESSION 5: SOFTWARE ENGINEERING PROJECT

Q: For the HSC will we have to write pseudocode for JavaScript as well or just Python?

A: Pseudocode is independent of any programming language. It's why it was presented before anything to do with JavaScript or Python. However, you should be able to translate pseudocode into Python only if required.

Q: Do we need to know DSU/Union find theory for SOE syllabus?

A: This is not in the syllabus, so no.

Q: Where can previous past paper questions be gotten for this?

A: There are no past paper questions. This is a completely new syllabus. Go to NESA Schools Online. If you do not have access, ask your principal to request you a Schools Online login. Then you navigate your way through that website to find the online exam resources for Software Engineering.

Q: Within the code editors during the HSC, will it point out basic syntax errors etcetera? Because it may be quite annoying seeing an entire function not running correctly due to a typo.

A: It will do. However, a basic syntax error may cover up a bigger logical error etc, so you are still going to need to acquire the skill of quickly parsing syntax and then going backwards and forwards from the point where the program stopped working to see if anything else is wrong.