SWEN90016 Software Processes and Management

THE UNIVERSITY OF MELBOURNE · GRADUATE COURSEWORK

Full guide + ask Sia about SWEN90016

SIDE 1/2 EXAM REVISION SHEET · DEFINITIONS → RULES → DECISIONS → BOUNDARIES S2 2026 · FINAL 50% Method map · **recite, apply, qualify**

0 · Exam Map

COURSE.JSON · BRIEF

A1 15 | A2 35 | FINAL 50%

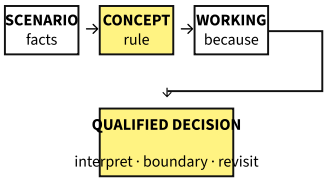
Permitted materials: not confirmed for this offering in the course materials we hold — check the exam instructions on the LMS.

ASSESSMENT	WEIGHT	FORMAT
Assignment 1	15%	Individual · approx. 750–900 words
Assignment 2	35%	Group project · planning, development, reflection, demonstration
Final Exam	**50%**	Individual final examination

Revision priority follows the guide's recurring decision work: **select** a process from evidence; turn uncertainty into an **owned response**; connect communication and artefacts to decisions; qualify conclusions when facts change.

1 · Universal Answer Spine

OVERVIEW · FAQ



Source route: scenario → concept → working → qualified decision.

WRITE IN THIS ORDER

```
Decision asked → supplied facts → governing concept → consequential working → contextual interpretation → boundary.
```

LINE	WHAT EARNS ITS PLACE
Classify	Name actor, artefact, period and decision scale.
Apply	Show the relationship that changes the result.
Verify	Check prose, table and diagram agree.
Qualify	Name the condition that could reverse or narrow it.

EVIDENCE LEDGER

Keep five entries visible: **fact → rule/model → working → interpretation → verification**. A fact is supplied; an inference is what the method permits you to conclude. If a response fails, record the trigger, mistaken inference, corrected reasoning and future check. This distinguishes a definition error from a relationship error or an overstatement.

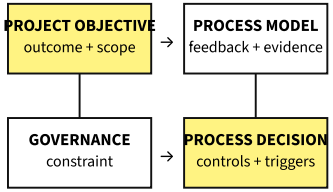
Reconstruct the definition, mechanism, check and boundary rather than isolated labels. Change one fact, find the first affected relationship and propagate only its consequences. Make prose, table and diagram tell the same story.

SIX DECISIONS TO RECITE

2 · Choose the Lifecycle

C1 · PROCESS CHOICE

Lifecycle model organises how work progresses, receives feedback and produces assurance evidence. Do not begin with a favourite label: begin with the project evidence and the exact decision.



Source element map: each role must remain separately inspectable.

EVIDENCE IN CASE	DECISION CONSEQUENCE
Requirement stability	Controls how much can sensibly be fixed early.
Technical uncertainty	Calls for learning and short feedback cycles.
Stakeholder access	Constrains validation cadence and channels.
Assurance obligation	Requires explicit evidence and review controls.
Release constraint	Shapes integration and delivery cadence.

SELECTION RULE · BITES IN A CASE

```
Facts → control needed → lifecycle arrangement → evidence that would trigger adaptation.
```

A mixed case can justify a **mixed arrangement**: use different controls for discovery, assurance and integration, then show how their reviews connect. State decision rights; otherwise "hybrid" is only a label.

BOUNDARY CHECKS

- Familiar ≠ suitable. Revisit the choice when uncertainty changes.
- Removing a stable regulatory requirement weakens heavy up-front documentation; retain only controls justified by remaining risk and coordination.
- Every ceremony, artefact or gate needs an uncertainty, obligation or decision beside it.

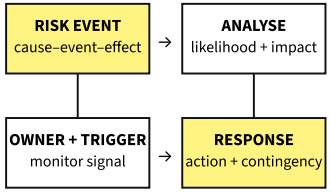
HOW TO JUSTIFY THE ARRANGEMENT

Write one sentence per proposed control: "Because the case states [evidence], use [control] to produce [feedback or assurance]." Then add its owner, review point and observable consequence. If the same sentence could be pasted into any project, it is not yet grounded in the case.

3 · Risk → Owned Response

C2 · W3

Risk = uncertain event that may affect objectives. *Issue* = event already occurred and needing current action. Do not describe an unstable dependency as a present defect unless it has actually failed.



Source map: uncertainty becomes priority only through defined analysis.

RISK STATEMENT · FIRST LINE IN A CASE

```
Because [cause], [uncertain event] may occur, leading to [effect on objective].
```

MOVE	REQUIRED EVIDENCE
Identify	Cause, uncertain event, project effect.
Analyse	Defined likelihood/impact scales, time horizon, assumptions.
Respond	Mitigation plus contingency; distinguish current action from fallback.
Own	Named person accountable for monitoring and response.
Monitor	Observable trigger: e.g. notices or failed integration tests.

A colour or score is not self-explanatory. It communicates priority only after scales, horizon and response assumptions are defined. A changed interface guarantee may lower likelihood, yet availability and internal-integration residual risks remain.

RISK REGISTER ANSWER

Record description, likelihood, impact, priority, owner, response, trigger and residual risk. Escalate when the threshold exceeds the owner's authority; do not confuse escalation with ownership transfer.

REASONING DISCIPLINE

Assign likelihood and impact only after the event and objective are clear. Priority depends on the defined horizon, scales and response assumptions; state them beside the score so another reader can reproduce it.

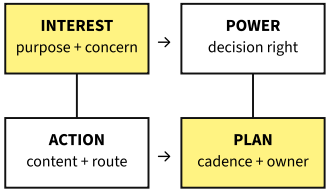
Pair mitigation and contingency actions with an observable signal and the person accountable for acting. Then name what uncertainty remains: **residual risk is not automatically zero.**

When evidence changes, update only the affected components. A stable-interface guarantee lowers interface-change likelihood; availability and internal integration still need reassessment.

4 · Stakeholders & Communication

C3 · W4

Separate *interest* (what outcome matters), *influence/power* (what decision can be changed) and *communication action* (information and route that enables the decision).



Source element map: communication follows decision rights.

COMMUNICATION PLAN · BITES IN A SCENARIO

```
Stakeholder → decision → evidence needed → format/channel → cadence → sender → feedback route → escalation trigger.
```

PROMPT FACT	TAILORED ACTION
High operational knowledge; limited authority	Iterative demonstrations and workflow-evidence feedback loops.
Controls funding	Concise progress, risk and explicit decision requests.
Conflicting views	Name who synthesises conflict and who owns acceptance.
Approval power changes	Update escalation and decision paths; do not preserve sponsor approval by habit.

FAILURE MODES

- High frequency with the **wrong evidence** still fails.
- Correct evidence sent to a role without decision rights still fails.
- A meeting with no decision, feedback route or owner is activity, not control.
- A generic status report cannot replace a targeted decision request.

Write the decision first. Only then choose content, channel and cadence. Frequency is not a substitute for relevance or accountability.

PRESSURE-TEST THE PLAN

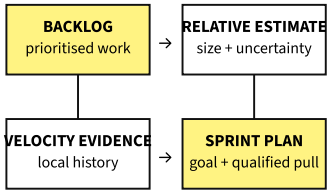
For every row, ask: what information changes this stakeholder's decision; who prepares it; when is it still actionable; how does feedback return; what triggers escalation? Format and channel follow those answers. A demonstration suits workflow evidence; a concise decision request suits a funding decision.

Keep operational knowledge distinct from formal authority. Expertise can be indispensable to acceptance evidence without granting approval power. Connect both roles and name who resolves conflict.

5 · Agile Estimation & Flow

C4 · W5

Velocity is a **team-local historical measure** of completed relative estimates over a sprint. It supports a forecast discussion; it is neither a promise, a productivity target nor a conversion rate between teams.



Source map: velocity qualifies a plan; it does not dictate one.

PLANNING MOVE	CHECK BEFORE ACCEPTING
Prioritise backlog	Does selected work form a coherent goal?
Use relative estimates	Are estimates local and comparable in context?
Inspect history	Absences, novelty, story splitting, quality shortcuts?
Pull work	Near demonstrated capacity, with uncertainty retained.
Adapt	New integration stories → discovery tasks, splitting, reserve capacity.

RESPONSIBLE FORECAST · EXAM WORDING

```
Historical centre + current capacity/context + novelty/uncertainty → qualified range or pull, never a guarantee.
```

WHAT HIGHER VELOCITY CAN MEAN

More completed relative estimates is only one possibility. The number may also move because estimation practice, story splitting or the definition of done changed, or because quality was cut. Inspect scope and context before interpreting.

- Do not compare individuals or teams by velocity.
- Do not inflate estimates to hit a target.
- Do not assume historical evidence transfers unchanged to unfamiliar work.

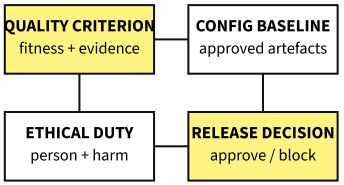
PLANNING CONVERSATION

Start with prioritised work and a coherent goal. Use recent comparable completion as a discussion centre; inspect absences, novelty and integration uncertainty. Pull near demonstrated capacity while leaving uncertainty visible.

If story splitting, estimation practice or quality criteria change, the number's meaning changes too. Interpret "higher" only after checking scope and definition of done.

6 · Quality, Config & Ethics

C5



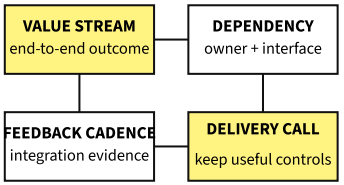
Source map: functional evidence cannot override ethical harm.

RELEASE CLAIM	NECESSARY CONTROL
Meets acceptance	Criterion + test evidence + known limitations.
Reproducible identity	Approved configuration baseline for test/release.
Accountable decision	Named approval and documented change history.
Professionally defensible	Affected person, potential harm, purpose, access, retention.

Passing tests ≠ fitness for purpose. Traceable changes also do not make an unethical product acceptable. A defensible release joins acceptance evidence, configuration identity, limitations, ethical effects and accountable approval.

7 · Scale from Dependencies

C6



Source map: coordination starts with observed dependency.

DO FIRST	THEN DESIGN
Map value flow	Portfolio intent → team work → integration → stakeholder outcome.
Name dependency	Owner, interface, integration criterion and cadence.
Set authority	Decisions at lowest capable level; thresholds for escalation.
Choose events	Only events with explicit outputs that reduce delay, risk or ambiguity.

Scaling adds coordination cost. A framework is useful only if its roles and events solve observed dependency or governance problems. Independent release environments may reduce integration dependence, but shared interfaces, outcomes and priorities can remain.

ANSWER TEST → *Name the dependency and decision before naming any framework ceremony.*

SWEN90016

Worked Mini-Cases · Traps · Fast Recall

SOFTWARE PROCESSES AND MANAGEMENT · SELF-TEST SIDE

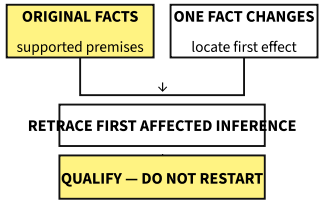
Full guide + ask Sia about SWEN90016

SIDE 2/2 FIVE WORKED MINI-CASES · IF X → DO Y · CLASSIC TRAPS · EXAM-MORNING PLAN SELF-TEST · COVER ANSWERS Change one fact · **repair first inference**

8 · Method Chooser ALL CHAPTERS

Underline the **decision noun** before writing. Then choose only the method that controls it; unrelated definitions consume time and hide the actual reasoning.

IF THE PROMPT ASKS...	RETRIEVE	FINISH WITH
Which process?	Objective + uncertainty + assurance/release constraints	Arrangement, controls, adaptation trigger
What risk response?	Cause–event–effect + likelihood/impact	Owner, mitigation, contingency, signal
Who needs what?	Interest + power + decision right	Content, channel, cadence, feedback/escalation
What fits a sprint?	Priority + relative estimate + local history	Goal, qualified pull, uncertainty
Can it release?	Acceptance + baseline + harm	Approve/block, change, accountability
How coordinate teams?	Value flow + observed dependency	Owner, integration criterion, useful cadence



Source transfer rule: preserve every premise that still holds.

ANSWER MINIMUM

```
Classification/model + decisive
working + interpretation in context
+ assumption/evidence that could
change it.
```

THIRTY-SECOND TRIAGE

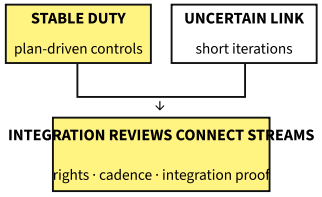
1. Circle actor, objective, artefact and time.
2. Box every supplied constraint; do not add facts.
3. Name the decision owner and observable evidence.
4. State what changes first if one fact moves.

COVER-AND-RECALL PROTOCOL

Cover the "Retrieve" and "Finish with" columns. Say the governing elements and one boundary, then reveal only the first mismatch. Repeat with one fact changed while holding unrelated facts fixed.

9 · Worked 1 – Lifecycle Mix C1 WORKED CASE

Prompt. Safety-sensitive prototype: stable regulatory documentation; uncertain interface requirements. Recommend a lifecycle arrangement.



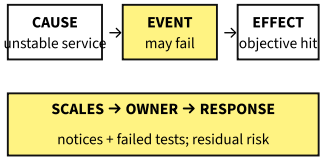
Answer path: different constraints justify different controls.

STEP	MODEL ANSWER MOVE
1 · Separate	Discovery, assurance and integration constraints.
2 · Choose	Plan-driven evidence controls + short iterative interaction cycles.
3 · Connect	Integration reviews and continuous integration evidence.
4 · Govern	Decision rights and criteria for changing cadence.

Changed fact: remove the stable regulatory requirement. **Repair:** heavy up-front documentation weakens; keep controls still justified by risk and coordination. Retain iterative discovery or integration needs where evidence still supports them.

10 · Worked 2 – External Service Risk C2 WORKED CASE

Prompt. Key integration depends on an unstable external service. Write risk, response and signal; it is not yet a defect.



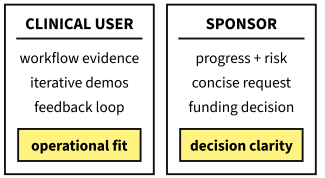
Cause–event–effect first; scoring and ownership come after.

WRITE	Cause–event–effect in one sentence.
EVALUATE	Likelihood and impact on defined scales and horizon.
CONTROL	Owner; mitigation; contingency; escalation threshold.
OBSERVE	Service-change notices and failed integration tests.

Changed fact: provider guarantees a stable interface. Likelihood falls, but availability and internal integration risks remain; reassess rather than delete automatically.

11 · Worked 3 – Two Stakeholders C3 WORKED CASE

Prompt. Clinical user: high operational knowledge, limited formal authority. Sponsor: controls funding. Design communication for each.



Same project, different evidence and decision rights.

QUESTION	ANSWER
What does each decide?	User informs workflow fit; sponsor decides funding.
What evidence?	Workflow demonstrations vs progress, risk and decision requests.
Who closes conflict?	Name who synthesises views and who owns acceptance.
Where is feedback?	Make the return route and escalation trigger explicit.

Changed fact: give the user group formal approval power. **Repair:** update approval and escalation paths. Do not leave approval with the sponsor by habit when governance has shifted.

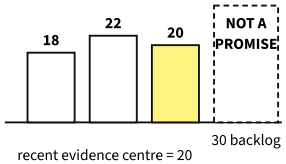
TRAP → *"Weekly meeting" is not an answer until content, decision, sender, feedback and escalation are named.*

12 · Worked 4 – Velocity C4 WORKED NUMBERS

Given: comparable sprints completed **18, 22 and 20 points**; next backlog has **30 prioritised points**.

COMPUTE THE HISTORICAL CENTRE

```
(18 + 22 + 20) ÷ 3 = 60 ÷ 3 = 20
points
```



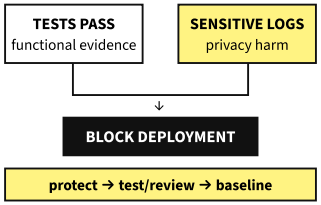
The 30-point backlog does not convert historical evidence into a guarantee.

Answer path: use 20 as evidence; check absences, novelty and comparability; select a coherent goal; pull work near demonstrated capacity while retaining uncertainty. Do **not** promise all 30 or inflate estimates.

Changed fact: unfamiliar integration stories arrive. Forecast confidence falls → split stories, add discovery tasks and reserve capacity.

13 · Worked 5 – Release Block C5 WORKED CASE

Prompt. A feature passes automated tests but exposes sensitive user data in logs. Decide how quality and ethics affect release.



Functional success is necessary evidence, not a complete release decision.

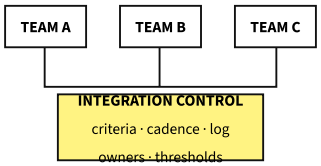
STEP	ANSWER PATH
Criterion	Treat privacy as a release criterion; identify affected person and harm.
Decision	Block deployment; schedule pressure does not override harm.
Remedy	Remove/protect logged data; add tests and review controls.
Config	Document changed artefacts and approved release baseline.
Own	Identify approval and accountability.

Changed fact: logs accessible only to administrators. Exposure narrows but purpose, retention and least privilege still require review. Restricted access does not itself prove the feature safe.

RELEASE SENTENCE

```
Because test evidence does not
cover privacy harm, block release
until the criterion, controls,
baseline and accountable approval
are satisfied.
```

14 · Scale Case – Three Teams C6 TRANSFER

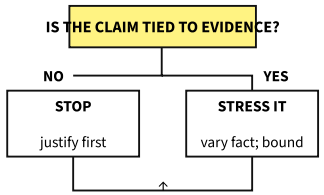


Coordinate the dependency; avoid meetings without explicit outputs.

Map the shared value stream, name dependency owners, set integration criteria/cadence, keep a common decision log and escalate only thresholds beyond team authority. Independent environments may remove some integration dependence; shared interfaces and outcomes may remain.

15 · Judgement Cards IF X → DO Y

IF YOU SEE...	DO THIS	DO NOT
Uncertain needs + stable assurance duty	Separate streams; connect by integration reviews.	Force one uniform lifecycle label.
Already occurred	Treat as issue; act now.	Score it only as future risk.
Risk colour/number	Define scale, horizon and assumptions.	Treat colour as self-explanatory.
High-interest, low-power user	Build evidence-rich feedback loop.	Confuse expertise with formal approval.
Higher velocity	Inspect context, splitting and quality.	Infer productivity or compare teams.
30 points ready; history near 20	Pull near evidence; retain uncertainty.	Promise 30 or inflate estimates.
Tests pass; harm remains	Block; add criterion and controls.	Equate functional tests with fitness.
Traceable unethical change	Address ethical duty and harm.	Treat traceability as acceptability.
Several teams share interface/release	Map value flow and dependency owners.	Add ceremonies by default.
One premise changes	Repair first affected inference.	Discard all supported premises.



Every preferred answer must survive an evidence and boundary check.

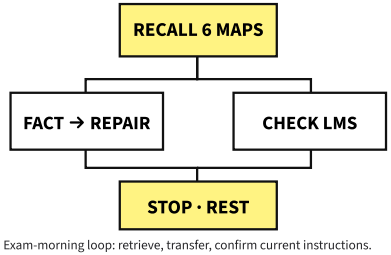
CLASSIC OVERSTATEMENTS

- "Agile because requirements are uncertain" is incomplete: state feedback, assurance and release controls.
- "Mitigate high risk" is incomplete: write cause–event–effect, owner, trigger and residual risk.
- "Communicate frequently" is incomplete: name decision, evidence and route.
- "Use a scaling framework" is incomplete: name the dependency it resolves and the event output.

Also reject "tests pass, therefore release", "the change is traceable, therefore acceptable" and "the interface is stable, therefore integration risk is gone". Each skips a separate control: fitness and harm, ethical duty, or residual availability/internal-integration uncertainty.

16 · Rapid Recall Grid SAY ALOUD

TERM	ONE-LINE RECALL	BOUNDARY
Lifecycle model	Progress + feedback + assurance evidence.	Choice follows project facts.
Risk owner	Accountable for monitoring and response.	Needs observable trigger.
Communication plan	Purpose, information, format, timing, sender, feedback, escalation.	Must serve a decision.
Velocity	Local completed relative estimates per sprint.	Not promise/productivity/comparison.
Configuration baseline	Approved artefact set for test/release.	Traceability ≠ ethical approval.
Value stream	End-to-end flow to stakeholder outcome.	Keep only useful scale controls.



Exam-morning loop: retrieve, transfer, confirm current instructions.

EXAM-MORNING PLAN

1. Reconstruct the six element maps without notes: process, risk, stakeholder, assurance, scale.
2. For each, say the **starting object → relationship → control → boundary**.
3. Redo the 18–22–20 velocity case and one qualitative case from memory.
4. Read the current LMS exam instructions; do not infer conditions from an older offering.
5. Pack only what those current instructions allow. Stop adding new material; preserve attention for decision work.

FINAL ANSWER AUDIT

```
Requested decision? · facts used? · rule
visible? · owner/evidence named? · boundary
stated? · no invented premise?
```

SIX FINAL PROMPTS

Process	Which uncertainty or obligation justifies each control?
Risk	Who watches which signal and acts?