PROGRAM & FACULTY TOOLS

Program Design Toolkit

Five practical tools for designing, aligning, sequencing, and sustaining cybersecurity courses and programs.

Included resources

01 **Program Outcomes Map**

02 **Course-to-Program Alignment Matrix**

03 **Prerequisite & Skill Dependency Map**

04 **Semester Module Planner**

05 **Faculty Course Handoff Checklist**

Each resource is also available as a readable web page plus an individual PDF and editable Word file.

https://educate.baremetalcyber.com/resources/program-design-toolkit/

Program Outcomes Map

Faculty and program leaders | Template

Program / credential: _____

Credential level: _____

Program owner: _____

Version / review date: _____

Use this map to connect each program outcome to the courses, practice opportunities, and evidence that demonstrate learner achievement. Keep outcome language measurable and review the map whenever the curriculum changes.

Program Outcome Coverage

ID	Program outcome	Industry / workforce expectation	Courses or modules	Practice evidence	Summative evidence	Owner	Review date
PO-01							
PO-02							
PO-03							
PO-04							
PO-05							
PO-06							
PO-07							
PO-08							

Quality Check

[ ] Each outcome describes observable learner capability.

[ ] Every outcome is introduced, practiced, and assessed somewhere in the program.

[ ] Evidence can be produced without exposing real credentials, sensitive data, or unauthorized systems.

[ ] Employers, advisory partners, accreditation expectations, and program mission are represented where appropriate.

[ ] Gaps, duplication, and outdated coverage are assigned an owner and review date.

Source and use

Bare Metal Cyber Educators Hub, Dr. Jason Edwards. Program Design Toolkit - Program Outcomes Map.

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Read online: https://educate.baremetalcyber.com/resources/program-outcomes-map/

Course-to-Program Alignment Matrix

Faculty and program leaders | Template

Program / credential: _____ **Academic year:** _____ **Program owner:** _____ **Review date:** _____

Mark where each program outcome is Introduced (I), Practiced (P), Assessed (A), or demonstrated at expected Mastery (M). One course may carry multiple marks for an outcome as learners progress.

Alignment Matrix

Course / module	PO-01	PO-02	PO-03	PO-04	PO-05	PO-06	Key evidence	Notes / action
Course 01								
Course 02								
Course 03								
Course 04								
Course 05								
Course 06								
Course 07								
Course 08								
Course 09								
Course 10								

Legend: I = Introduced | P = Practiced | A = Assessed | M = Expected mastery

Review Questions

[ ] Where is an outcome assessed only once or too late?

[ ] Which courses carry too many program outcomes?

[ ] Where do learners practice before a high-stakes assessment?

[ ] Are there outcomes with no clear evidence artifact?

[ ] Do prerequisites support the expected level of performance?

Source and use

Bare Metal Cyber Educators Hub, Dr. Jason Edwards. Program Design Toolkit - Course-to-Program Alignment Matrix.

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Read online: https://educate.baremetalcyber.com/resources/course-to-program-alignment-matrix/

Prerequisite & Skill Dependency Map

Faculty and program leaders | Template

Program / pathway: _____ **Course or sequence owner:** _____ **Version:** _____ **Review date:** _____

Use this map to expose hidden prerequisites before they become learner failure points. Record the knowledge or skill required, how readiness is demonstrated, and the bridge or remediation path when a learner is not ready.

Dependency Map

Target course / module	Required knowledge	Required skill	Readiness evidence	Source course / experience	Risk if missing	Bridge / remediation

Dependency Check

[ ] Required technical skills are taught before they are assessed.

[ ] Tool-specific knowledge is separated from durable concepts where possible.

[ ] Learners have a safe way to practice before graded work.

[ ] Prerequisites do not create unnecessary barriers or duplicate requirements.

[ ] Bridge activities have an owner, location, and completion expectation.

Source and use

Bare Metal Cyber Educators Hub, Dr. Jason Edwards. Program Design Toolkit - Prerequisite & Skill Dependency Map.

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Read online: https://educate.baremetalcyber.com/resources/prerequisite-skill-dependency-map/

Semester Module Planner

Faculty and program leaders | Planning Template

Course / module: _____

Instructor: _____

Delivery mode: _____

Meeting pattern: _____

Primary outcomes: _____

Term / cohort: _____

Choose the 8-, 12-, or 16-week layout that matches the course. Sequence instruction so learners encounter concepts, practice them, receive feedback, and then produce evidence at the expected level of independence.

8-Week Planning Grid

Week	Topic / driving question	Outcome(s)	Learning activity / lab	Assignment / assessment	Preparation / resources	Instructor notes
1						
2						
3						
4						
5						
6						
7						
8						

12-Week Planning Grid

Week	Topic / driving question	Outcome(s)	Learning activity / lab	Assignment / assessment	Preparation / resources	Instructor notes
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

16-Week Planning Grid

Week	Topic / driving question	Outcome(s)	Learning activity / lab	Assignment / assessment	Preparation / resources	Instructor notes
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Course Rhythm Check

[ ] Major assessments have enough practice and feedback before submission.

[ ] Lab preparation and cleanup time are realistic.

[ ] Workload spikes are visible and intentionally managed.

[ ] Accessibility, make-up work, holidays, and likely disruption points have been considered.

[ ] The final weeks leave time for synthesis, reflection, and evidence review.

Source and use

Bare Metal Cyber Educators Hub, Dr. Jason Edwards. Program Design Toolkit - Semester Module Planner.

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Read online: https://educate.baremetalcyber.com/resources/semester-module-planner/

Faculty Course Handoff Checklist

Faculty and program leaders | Checklist

Course: _____ **Departing faculty / owner:** _____

Receiving faculty: _____ **Term / effective date:** _____

Use this checklist when a course changes instructors or owners. The goal is to transfer intent, evidence, files, known risks, and operational details - not just a folder of materials.

Course intent and outcomes

[ ] Current syllabus and course description

[ ] Course outcomes and program-outcome alignment

[ ] Required prerequisites and expected starting skills

[ ] Known learner trouble spots and successful interventions

Content and instructional materials

[ ] Current module sequence and lesson materials

[ ] Authoritative sources, citations, and update-sensitive references

[ ] Required software, licensing, accounts, and access

[ ] Materials that should be retired or revised

Labs and technical delivery

[ ] Lab objectives and authorized scope

[ ] Environment setup / teardown instructions

[ ] Safety, privacy, and data-handling constraints

[ ] Fallback or low-tech alternatives

[ ] Known technical failure modes and recovery steps

Assessment and grading

[ ] Assessment blueprint and rubric set

[ ] Answer-bearing materials transferred privately

[ ] Grading conventions and calibration notes

[ ] Academic-integrity / AI-use expectations

[ ] Accommodation and accessibility considerations

Learner communication and operations

[ ] LMS structure and publishing sequence

[ ] Announcements, due-date conventions, and communication norms

[ ] Office hours / support pathways

[ ] Make-up, late-work, and disruption handling

Continuity and risk

[ ] Open curriculum changes or backlog items

[ ] Known compliance / accreditation dependencies

[ ] External partners, guest speakers, or employer commitments

[ ] Next review date and named owner

Handoff Notes

_____

_____

_____

_____

Acceptance

Departing faculty date: _____

Receiving faculty date: _____

Program lead date: _____

Source and use

Bare Metal Cyber Educators Hub, Dr. Jason Edwards. Program Design Toolkit - Faculty Course Handoff Checklist.

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Read online: https://educate.baremetalcyber.com/resources/faculty-course-handoff-checklist/