



**UNDERGRADUATE/GRADUATE EMPHASIS (SUB-PLAN) REQUEST FORM**  
**MAJORS WITH EXISTING EMPHASES (SUB-PLANS)**

- 1) **Requested by (College & School/Department):** College of Applied Science & Technology (CAST), Cyber, Intelligence, and Information Operations (CIIO) Department.
- 2) **Proposer’s name, title, email, and phone number:** Nicole Kontak, Assistant Dean, Curricular & Academic Affairs, [nicoler@arizona.edu](mailto:nicoler@arizona.edu), 520-626-6370
- 3) **Degree and major emphasis will be added to:** Bachelor of Applied Science (BAS) in Intelligence & Information Operations. Main Campus and AZ Online Campus.
- 4) **Total number of students that have completed the major in the past 3 years (include double majors and dual degree majors):** 145
  - a. **Total number of students currently enrolled in major:** 499
- 5) **Complete the table below capturing information about your existing major’s emphases. Add columns as needed.**

Name of existing emphasis plan(s)	Information Warfare	Law Enforcement Intelligence	Operational Intelligence
First term emphasis was offered	Fall 2020	Fall 2020	Fall 2020
Minimum units required to complete major core and emphasis (total)	42	42	42
<b>UG ONLY</b> - Minimum upper division (300 level or above) units required to complete major core and emphasis (total)	42	42	42
Additional requirements to complete emphasis	N/A	N/A	N/A
Number of students enrolled in emphasis	139	77	283
Total number of students that have completed emphasis in past 3 years	40	17	88

- 6) **Provide a rationale for the proposed new emphasis. You may also include market analysis data, please contact [Office of Curricular Affairs](#) to request the report for your proposal.**

The College of Applied Science and Technology is launching a strategic initiative with the Army to address the critical need for unclassified Signals Intelligence (SIGINT) and Electronic Warfare (EW) training and education. Recognizing the limitations of current classified training models that restrict skill sustainment and



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refreshment primarily to servicemembers, these efforts will expand the pool of highly skilled SIGINT/EW professionals by providing a robust pathway for both military and civilian personnel. Among the initiatives is the development of academic programs. These programs are designed to provide both foundational and advanced training, offering soldiers and civilians opportunities to earn professional credentials. This includes the new emphasis in the IIO major, as well as a new undergraduate certificate. The period of performance for this effort is ten (10) years beginning in FY25 (launch of the academic programs) and running through FY35 at approximately \$19,648,367.29 for the first five years and approximately \$18,312,132.12 for the second five years for a total of approximately \$37,960,499.41. Confidential Letter of Intent (LoI) available to show individuals upon request.

We also request an exception to the current [Military Credit](#) catalog policy so students can apply up to 48 credits of military credit towards the BAS in Intelligence and Information Operations, emphasis in Signals Intelligence and Electronic Warfare. The current military credit maximum is 30 credits.

**7) Common coursework to be taken across all emphases in the degree program.**

<u>Requirement Title/Description</u>	<u>Courses (include prefix, number, title, units)</u>	<u>Minimum units needed to satisfy requirement</u>
IIO Major Core	BASV 314 (3) Mathematics for Applied Sciences CYBV 329 (3) Cyber Ethics CYBV 450 (3) Information Warfare ENGV 306 (3) Advanced Composition GPSV 301 (3) American Political Ideas <i>*This is being updated starting AY 25-26 to CYBV 351 (3)</i> INTV 305 (3) Introduction to Intelligence & Information Operations INTV 326 (3) Introductory Methods of Intelligence Analysis INTV 350 (3) Intelligence Collection INTV 459 (3) Intelligence, Surveillance & Reconnaissance Synchronization INTV 498 (3) Capstone	30
IIO Emphasis Areas	<b>Information Warfare</b> Core (6 units) CYBV 437 Deception, Counter-Deception & Counter-Intelligence INTV 377 Psychological Operations  Electives (6 units, Choose from:) CYBV 351, CYBV 354, CYBV 435, CYBV 436, CYBV 440, CYBV 441, CYBV 475, CYBV 496, INTV 352, INTV 356, INTV 493, INTV 496	12





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IIO Major Core	BASV 314 (3) Mathematics for Applied Sciences CYBV 329 (3) Cyber Ethics CYBV 450 (3) Information Warfare ENGV 306 (3) Advanced Composition CYBV 351 (3) Signals Intelligence and Electronic Warfare INTV 305 (3) Introduction to Intelligence & Information Operations INTV 326 (3) Introductory Methods of Intelligence Analysis INTV 350 (3) Intelligence Collection INTV 459 (3) Intelligence, Surveillance & Reconnaissance Synchronization INTV 498 (3) Capstone	30
SIGINT Emphasis	12 credits as follows: INTV 460 (3) RF Digital Signal Processing (NEW) INTV 465 (3) Radio Frequency Reverse Engineering (NEW) CYBV 326 Introductory Methods of Network Analysis (3) CYBV 479 Wireless Networking and Security (3)	12
	<b>UG ONLY - Total emphasis upper division units required</b>	30
	<b>Total major emphasis units required*</b>	30

**9. Emphasis course/faculty information for NEW courses.**

Course	Title	Status*	Anticipated first term offered	Typically Offered (F, Sp, Su, W) and Frequency (every year, odd years, etc.)	Home Dept.	Faculty members available to teach the courses
INTV 460	RF Digital Signal Processing	S	Spr 2026	F, Spr, Yearly	CIIO	Nazareth, Cota, Denno
INTV 465	Radio Frequency Reverse Engineering	S	Spr 2026	F, Spr, Yearly	CIIO	Nazareth, Denno



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INTV 240	Principles of Signals Intelligence and Electronic Warfare	S	Fall 2025	F, Spr, Yearly	CIIO	Nazareth, Cota, Denno, Tortorici
INTV 230	Modulation and Keying	S	Fall 2025	F, Spr, Yearly	CIIO	Nazareth, Cota, Denno, Tortorici
INTV 220	Analog and Digital Signals	S	Fall 2025	F, Spr, Yearly	CIIO	Nazareth, Cota, Denno, Tortorici
INTV 210	Fundamentals of Radio Frequency Analysis	S	Fall 2025	F, Spr, Yearly	CIIO	Nazareth, Cota, Denno, Tortorici

**10. Emphasis course/faculty information for existing courses.**

Course prefix and number	Title	Typically Offered (F, Sp, Su, W) and Frequency (every year, odd years, etc.)	Home Department	Faculty members available to teach the courses
CYBV 351	Signals Intelligence and Electronic Warfare	F, Yearly	CIIO	Nazareth, Cota, Denno, Tortorici
CYBV 479	Wireless Networking and Security	F, Yearly	CIIO	Nazareth, Cota, Denno, Tortorici, Kendrick

**11. Using the table below, list each faculty member who will contribute to the teaching of courses in the emphasis and the teaching FTE will contribute. Add rows as needed.**

Course(s)	Name	Department	Rank	Degree	Faculty/% effort
INTV 460	Cota	CIIO	Assistant Professor of Practice	DBA	80/20
INTV 465	Nazareth	CIIO	Assistant Professor of Practice	MS	80/20
INTV 240	Tortorici	CIIO	Assistant Professor of Practice	PhD	80/20
INTV 230	Denno	CIIO	Adjunct	MS	80/20
INTV 220	Nazareth	CIIO	Assistant Professor of Practice	MS	80/20
INTV 210	Kendrick	CIIO	Assistant Professor of Practice	PhD	80/20



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12. At minimum, provide one unique learning outcome for each proposed emphasis. Add rows and tables as needed. Visit the [University Center for Assessment, Teaching and Technology \(UCATT\)](#) for resources and consultation. UCATT review and approval is required.

<b>Learning Outcome #1:</b> Explain and demonstrate how to use the principles of SIGINT and EW to support strategic and operational decision making.
<b>Concepts:</b> RF Fundamentals, Spectrum Analysis, Wave & Signal Propagation, Modulation & Keying, Protocol Analysis, Signal of Interest Decomposition & Analysis
<b>Competencies:</b> Spectrum Survey & Analysis, Signal Identification, Signal Filtering, Signal Extraction, Demodulation, Decoding, Internals & Externals Analysis, Signal Decomposition.

**Curriculum Map: Which courses in the emphasis connect to these learning outcomes? Use the table below to provide the information, Key: "I"=Introduced; "R"=reinforced and opportunity to practice; "M"=mastery at the senior or exit level; "A"=assessment evidence collected for program-level decision making**

Courses	Emphasis 1 Student Learning Outcomes
	LO 1
INTV 460	M
INTV 465	M
CYBV 326	I
CYBV 479	R
INTV 350	R
INTV 459	R
INTV 498	A

13. Name of the proposed emphasis: Signals Intelligence and Electronic Warfare

- a. Anticipated semester and year to launch the proposed emphasis: Fall 2025
- b. Do you want the emphasis name to appear on the transcript?  Yes  No
- c. Do you want the emphasis name to appear on the diploma?  Yes  No

14. Campus and location offering: Please attach a completed [Add/Remove Campus form](#) to your proposal if offered via Online or Distance. You must have already spoken and received approval from ODCE.



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AZ Online and Main Campus

**15. Special conditions for admission to/declaration of this emphasis** – explain in detail the criteria to declare this emphasis, including GPA requirements, completion of courses prior to declaration, application process, interviews, etc. These conditions must be approved by faculty governance to be enforced.

No special conditions for declaration.

**16. Number of new faculty hires required to deliver the emphasis:**

None

**17. Budgetary impact –**


None. Current faculty used and funds given by contract to support future hires in year 5 if necessary.

**18. Accreditation/Board Approval -**

No programmatic or board approvals.

**19. Required Signatures**

Department Head: Dr. Josh Pauli

Signature: 

Date: Oct 11, 2024

Associate Dean: Dr. Linda Denno

Signature: 

Date: Oct 11, 2024

Dean: Dr. Nic Rae

Signature: *Nicol Rae*

Date: Oct 11, 2024












# UG\_Emphasis\_Existing Emph\_SIGINT

Final Audit Report

2024-10-11

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