



Faculty of Automotive Electrical & Electronics



Curriculum with Course Syllabus

Department: CAR SECURITY & TRACKING SYSTEMS

Semester 1-4 | Core Courses + ATA 2040 Electives + SIWES + Capstone with Course Codes (CST 101-CST 404)

CST 101 – Workshop Safety & Security Electronics Tools

Credit Hours	2 (1T/1P)
Course Description	Safety in handling tracking/security devices.
Syllabus / Topics	• PPE • Multimeters • GPS testers • Soldering kits
Practical Activities / Lab Work	• Install & test basic alarm
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Apply safe handling of security electronics.
Accreditation Mapping	NBTE NID Safety ASE
AI/Future Module ↙	VR Safety Lab

CST 102 – Fundamentals of Vehicle Security Systems

Credit Hours	3 (2T/1P)
Course Description	Vehicle theft methods, security evolution.
Syllabus / Topics	• Theft methods • Security evolution
Practical Activities / Lab Work	• Study OEM vs aftermarket alarms
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Explain fundamentals of vehicle security systems.



Automotive Technical Academy (ATA)

Accreditation Mapping	NBTE NID ASE
AI/Future Module ↘	AI Security Vulnerability Analyzer

CST 103 – Basics of Car Alarms & Immobilizers

Credit Hours	2 (1T/1P)
Course Description	Alarm wiring, sirens, immobilizer principles.
Syllabus / Topics	• Alarm systems • Sirens • Immobilizers
Practical Activities / Lab Work	• Wire & test immobilizer
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Install and service basic alarm/immobilizer systems.
Accreditation Mapping	NBTE NID IMI-UK
AI/Future Module ↘	AR Alarm Wiring Visualizer

CST 104 – GPS & GSM Tracking Fundamentals

Credit Hours	2 (1T/1P)
Course Description	GPS/GSM modules, SIM cards, antennas.
Syllabus / Topics	• GPS basics • GSM modules • Antennas
Practical Activities / Lab Work	• Build basic GPS tracker circuit
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Understand GPS/GSM basics for vehicle tracking.
Accreditation Mapping	NBTE NID ASE
AI/Future Module ↘	AI Tracker Signal Analyzer

CST E1 – CAD Tracker Hardware Design (Elective)

Credit Hours	2 (0T/2P)
Course Description	Basics of CAD tracker and hardware design.
Syllabus / Topics	• CAD basics • GPS module design
Practical Activities / Lab Work	• Create CAD tracker hardware design
Assessment Methods	Project 100%
Learning Outcomes	Apply CAD to design tracking systems.
Accreditation Mapping	NBTE Elective IMI-UK
AI/Future Module ↘	CAD GPS Module Designer

CST 201 – Advanced Car Alarms

Credit Hours	3 (1T/2P)
Course Description	Multi-zone alarms, shock sensors, glass break sensors.
Syllabus / Topics	• Multi-zone alarms • Shock sensors • Glass break sensors



Automotive Technical Academy (ATA)

Practical Activities / Lab Work	• Install aftermarket alarm system
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Install and configure advanced alarm systems.
Accreditation Mapping	NBTE NID ASE
AI/Future Module ↘	AI Alarm Diagnostics

CST 202 – Immobilizers & Key Security

Credit Hours	3 (1T/2P)
Course Description	OEM immobilizers, transponder communication.
Syllabus / Topics	• Immobilizers • Transponder chips
Practical Activities / Lab Work	• Clone/program immobilizer chip
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Service immobilizer and key security systems.
Accreditation Mapping	NBTE NID ASE
AI/Future Module ↘	Smart Key Security Simulator

CST 203 – GPS/GSM Tracking Systems I

Credit Hours	2 (1T/1P)
Course Description	Fleet tracking basics, data transmission.
Syllabus / Topics	• Fleet tracking • Data transmission
Practical Activities / Lab Work	• Install GPS tracker in vehicle
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Install and maintain GPS tracking systems.
Accreditation Mapping	NBTE NID IMI-UK
AI/Future Module ↘	IoT Fleet Tracker

CST 204 – Sensors & Actuators in Security Systems

Credit Hours	2 (1T/1P)
Course Description	Motion, ultrasonic, microwave sensors.
Syllabus / Topics	• Motion sensors • Ultrasonic sensors • Microwave sensors
Practical Activities / Lab Work	• Test sensor integration with alarm
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Integrate sensors into vehicle security systems.
Accreditation Mapping	NBTE NID ASE
AI/Future Module ↘	AI Intrusion Analyzer

CST E2 – AR Security Circuit Troubleshooting (Elective)

Credit Hours	2 (0T/2P)
---------------------	------------------



Automotive Technical Academy (ATA)

Course Description	AR-based troubleshooting of car security circuits.
Syllabus / Topics	• AR tools • Security system simulation
Practical Activities / Lab Work	• Simulate security troubleshooting with AR
Assessment Methods	Project 100%
Learning Outcomes	Apply AR for car security circuit troubleshooting.
Accreditation Mapping	NBTE Elective IMI-UK
AI/Future Module ↗	AR Security Fault Finder

CST 301 – SIWES Internship

Credit Hours	6 (0T/6P)
Course Description	Supervised internship in car security/tracking workshops.
Syllabus / Topics	• Workshop exposure • Supervisor reviews
Practical Activities / Lab Work	• On-the-job installation & diagnostics
Assessment Methods	Supervisor Report 50% Logbook 30% Oral 20%
Learning Outcomes	Apply car security/tracking knowledge in industry.
Accreditation Mapping	NBTE SIWES ASE
AI/Future Module ↗	IoT Internship Logbook





Automotive Technical Academy (ATA)

CST 401 – Capstone Project

Credit Hours	6 (0T/6P)
Course Description	Independent project in advanced car security/tracking systems.
Syllabus / Topics	• Proposal • Execution • Defense
Practical Activities / Lab Work	• Build AI security/tracking solution
Assessment Methods	Project 50% Report 30% Defense 20%
Learning Outcomes	Plan and deliver a project in car security/tracking.
Accreditation Mapping	NBTE NID ASE
AI/Future Module ↘	AI Security Suite

CST 402 – GPS/GSM Tracking Systems II

Credit Hours	3 (1T/2P)
Course Description	Advanced GPS, telematics integration.
Syllabus / Topics	• Advanced GPS • Telematics • Data integration
Practical Activities / Lab Work	• Install telematics fleet system
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Analyze and service advanced GPS systems.
Accreditation Mapping	NBTE NID ASE
AI/Future Module ↘	AI Telematics Analyzer

CST 403 – Cybersecurity for Car Security Systems

Credit Hours	2 (1T/1P)
Course Description	Hacking risks, countermeasures.
Syllabus / Topics	• Car hacking risks • Countermeasures
Practical Activities / Lab Work	• Simulate car hacking scenario
Assessment Methods	CA 20% Practical 40% Exam 40%
Learning Outcomes	Apply cybersecurity to vehicle security systems.
Accreditation Mapping	NBTE NID IMI-UK
AI/Future Module ↘	AI Cyber Defense Trainer



Automotive Technical Academy (ATA)

CST 404 – Entrepreneurship in Car Security & Tracking Services

Credit Hours	2 (1T/1P)
Course Description	Business setup for car tracking & security services.
Syllabus / Topics	• Business setup • Customer trust • Market analysis
Practical Activities / Lab Work	• Draft business plan for tracking service
Assessment Methods	CA 20% Business Plan 40% Exam 40%
Learning Outcomes	Develop entrepreneurship skills in security/tracking services.
Accreditation Mapping	NBTE NID IMI-UK
AI/Future Module ↘	AI Business Planner

CST E3 – Smart Security & IoT Integration (Elective)

Credit Hours	2 (0T/2P)
Course Description	Smart security systems and IoT integration.
Syllabus / Topics	• Smart security • IoT integration
Practical Activities / Lab Work	• Build IoT-enabled security prototype
Assessment Methods	Project 100%
Learning Outcomes	Design IoT-integrated car security systems.
Accreditation Mapping	NBTE Elective IMI-UK
AI/Future Module ↘	AI/IoT Smart Security Platform