

International Board of Forensic Engineering Sciences

EDUCATION · PROFESSIONAL FORENSIC EXPERIENCE · KNOWLEDGE · DEMONSTRATED COMPETENCIES

DACUM Research Chart for Forensic Engineering Scientist

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IBFES

International Board of Forensic Engineering Sciences

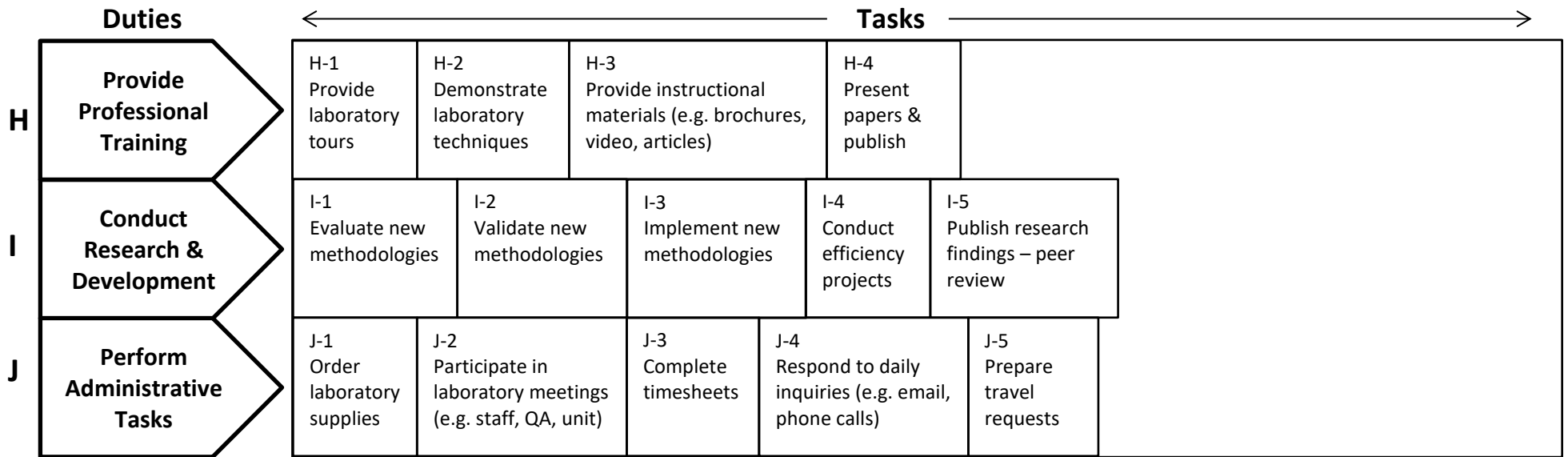
Possible job titles for employees within this occupational area include but are not limited to:

- Forensic Engineer
- Forensic Engineering Scientist
- Forensic Specialty Engineer
- Forensic Engineer Scientist

Duties and Tasks associated with this occupation may not be represented for every job title but should be inclusive of the occupation.

DACUM Research Chart for Forensic Engineer Scientist

Duties		← Tasks →									
A	Manage Casework Requests	A-1	A-2	A-3	A-4						
		Review case information		Develop testing plan	Coordinate testing with other disciplines	Address supplemental requests					
B	Perform Evidence Examinations	B-1			B-2	B-3	B-4				
		Maintain chain of custody (e.g. receive, document, disposition)			Inventory evidence items	Address case discrepancies	Document evidence (e.g. photos, notes, sketches)				
C	Process Photographs	C-1		C-2	C-3						
		Perform photometric recording		Perform 3D LiDAR scans	Data management						
D	Publish Examination & Interpretation Results	D-1	D-2	D-3		D-4		D-5		D-6	
		Write draft report	Conduct technical review	Conduct administrative review		Address review issues (e.g. technical, administrative)		Communicate technically reviewed results (e.g. written, verbal)		Issue final report	
E	Participate in the Legal Process	E-1		E-2	E-3		E-4				
		Address discovery requests		Address subpoenas	Participate in pre-trial conferences		Provide testimony (e.g. depositions, court)				
F	Perform QA/QC Responsibilities	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	
		Prepare work area	Perform instrument maintenance	Verify calibration	Participate in taking notes	Review laboratory manuals (e.g. evaluate, revise)	Monitor expert testimony	Process hazards review	Participate in preventative action process	Participate in performance review process	
G	Participate in Personal Professional Development	G-1	G-2			G-3		G-4		G-5	
		Review current literature	Complete continuing education activities (e.g. conferences, workshops, webinars)			Conduct presentations (e.g. posters, talks)		Participate in professional forums (e.g. CEUs, PDHs)		Receive professional training (e.g. programs, CEUs)	



Acronyms

ALS – alternate light source
 ANAB – ANSI National Accreditation Board
 IBFES – International Board of Forensic Engineering Sciences
 ISO – International Organization of Standardization
 PHR – Process Hazards Review
 PPE – personal protective equipment
 QA – Quality assurance
 QC – Quality control
 RMP – random match probability

Worker Behaviors (Attitudes/Traits)

Accurate
 Analytical
 Calm under pressure
 Common sense
 Confident
 Cooperative
 Detached
 Detail Oriented
 Ethical
 Fair
 Flexible
 Focus
 Goal oriented
 Honest
 Humility
 Logical
 Maintain confidentiality
 Open-minded
 Personal drive
 Precise
 Professional
 Quality oriented
 Unbiased

General Knowledge and Skills

Biology (molecular, cellular)
Chemistry
Genetics
Population Genetics
Statistics
Math
Scientific Method
Good laboratory practice (safety, PPE)
Lab policies
Other forensic disciplines
Legal system

Professional standards and guidelines

- ISO 17025
- ISO 17024
- ISO 17011
- ANSI
- ASHRAE

Skills

Computer
Communication (oral, written, presentation)
Problem-solving
Multi-tasking
Time management
Interpersonal
Organizational
Critical thinking
Listening
Decision making
Analytical

Tools, Equipment, Supplies and Materials

LiDAR
Thermal Cyclers (real-time, standard)
Microscope
Stereomicroscope
Stereo Scope
Scanning Electron
Temperature verification system
Computer
Micro Processor
Printer
Server
Internet access

Computer software programs

- data collection
- Microsoft Office
- photo documentation

PPE

- lab coat
- goggles
- gloves

Fume hood
Autoclave
Camera
Balance
pH meter
Heat block
Chemicals
Safety data sheets
Log books
Office supplies
Post-its
Library (books, journals)
Money

- data analysis
- Finite Element
- BIM - modeling

- hair net
- mask
- full protection

-Take Two- Take two minutes to verify safety plan

-For complicated projects use a PHR