

DACUM Research Chart for GIS Technician

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August 19 – 20, 2014

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		← Tasks				
A	Manage GIS Data	A-1 Obtain data sets *	A-2 Update versioned data	A-3 Update non versioned data	A-4 Perform QA/QC on GIS data	A-5 Update metadata
B	Create GIS Data	B-1 Create data schema	B-2 Collect field data	B-3 Digitize spatial features	B-4 Georeference spatial data	B-5 Geocode spatial data
C	Create Static Maps	C-1 Collaborate with stakeholders *	C-2 Determine Purpose of map	C-3 Identify specific data sets for map	C-4 Prepare cartographic data sets	C-5 Determine type of layout for map
		C-13 Document customer communication	C-14 Publish static maps	C-15 Print hard copy maps		
D	Create Dynamic Maps/applications	D-1 Determine purpose of application	D-2 Identify data sets for application	D-3 Prepare cartographic data sets for application	D-4 Determine type of layout for application	D-5 Design custom application layout
E	Analyze GIS Data	E-1 Define reason for analysis	E-2 Determine feasibility of analysis	E-3 Outline analysis process	E-4 Identify data sets	E-5 Identify analysis tools
F	Support Internal/external Customers	F-1 Process customer requests	F-2 Deliver product to customer *	F-3 Develop map resources (e.g. symbol sets, templates, logos)	F-4 Compile training materials	F-5 Provide GIS training
G	Maintain Hardware/software Systems	G-1 Initiate IT tickets	G-2 Install software	G-3 Install software updates	G-4 Update firmware	G-5 Apply software patches
H	Perform Administrative Tasks	H-1 Maintain supply inventory	H-2 Submit timesheet	H-3 Submit travel requests	H-4 Submit expense reports (e.g. travel, procurement)	H-5 Archive projects
I	Maintain Professional Knowledge	I-1 Develop personal training plan	I-2 Participate in training activities (e.g. online course, in person sessions)	I-3 Attend professional conferences	I-4 Present at GIS events	I-5 Represent organization at community events

A-6 Perform backup of GIS data	A-7 Update data inventory	A-8 Report GIS data changes	A-9 Archive data	A-10 Publish geodata (e.g. KML, WMS)	A-11 Publish metadata	A-12 Manage data agreements
B-6 Process raster data	B-7 Enter survey data (COGO)	B-8 Convert data across formats (e.g. CADD, KML, CSV, Excel, DBF)	B-9 Automate repeatable processes	B-11 Create metadata record		
C-6 Design custom map layout	C-7 Design map template	C-8 Modify existing map document	C-9 Follow required design specs for map	C-10 Determine map scale	C-11 Perform QA/QC on map	C-12 Document procedural steps *
D-6 Modify existing application	D-7 Follow required design specs for application	D-8 Determine application scales	D-9 Perform QA/QC on applications	D-10 Publish interactive maps		
E-6 Determine analysis parameters (e.g. extent, cell size, filters, relationships)	E-7 Create project workspace	E-8 Prepare data sets	E-9 Execute analysis process	E-10 Evaluate analysis results	E-11 Develop analysis report	
F-6 Provide equipment training (e.g. GPS, plotter, scanner)	F-7 Troubleshoot data issues	F-8 Troubleshoot software issues *	F-9 Troubleshoot equipment issues *			
G-6 Maintain software and equipment inventory	G-7 Change out equipment					
H-6 Facilitate meetings (e.g. webinar, phone conf., in-person)	H-7 Create purchase requests	H-8 Manage paper files	H-9 Manage electronic files	H-10 Maintain work log		
I-6 Review trade publications	I-7 Maintain professional memberships					

*Task is performed across more than one duty

General Knowledge and Skills*

.NET	FTP
911 systems	General safety
Adobe Creative Suite	Geocoding
ArcGIS desktop	Geoprocessing
ArcGIS online/portal	Georeferencing
ArcGIS server	GIS data models
Basic computer skills	GPS concepts
Basic HTML	Large format printing/scanning
Basic Java script	Metadata skills
Basic networking	Microsoft Office software
CADD	Model Builder (Esri)
Camtasia	Model building
Cartographic skills	Photography
COGO	Project management
Communication skills (oral and written)	Python scripting
Coordinate systems	Reading engineering plans
Customer service skills	Reading plats
Data accuracy and precision	Relational databases
Data formats	Remote sensing
Data mining	Scientific research
Data sharing	Snagit
Deed research	SQL query skills
Differential correction	SQL server
Editing spatial features	Statistics
Enterprise GIS	Topology concepts
File compression/decompression	Troubleshooting/problem solving
Finding/accessing online data sources	Where to find online training materials
FOIA	

Worker Behaviors

Able to handle multiple tasks	Good listener
Able to handle pressure	Independent thinker
Able to self start/take initiative	Loyal
Able to think quickly	Organized
Able to work independently	Polite
Common sense	Positive attitude
Critical thinker	Professional
Dedicated	Reliable
Detail oriented	Self-motivated
Effective communicator	Steward of data
Flexible	Team player
Friendly	Willing to learn continuously

*Required knowledge and skills differ based on the nature of the organization where GIS will be applied.

Tools, Equipment, Supplies, and Materials

CDs	Large format cutter
Compass	Laser rangefinder
Database software	Maps
Design software	Plotter
Desktop computer	Plotter/printer supplies
Desktop publishing software	Printer
Digital camera	Safety goggles
DVDs	Safety signs
External storage device	Scanner
Flash drive	Smartphone
GIS software	Spray adhesive
GPS	Survey equipment
GPS software	Tablet Computer
Hard hats	Vehicle
Laminator	

Future Trends and Concerns

Able to do more with less
ArcGIS Professional
Continued job security
Costs of data storage
Everchanging technology
Expansion in use of GIS to other career fields
Future of Esri
Increased regulations
Increased use of 3-D scanning/printing
Increased use of cloud/mobile technologies
Increased use of drones
Interoperability with other systems
Less expertise available
Need for education of public re: GIS vs tools available to public
Next generation 911
Open data
Public knowledge/use of Google
Use of BIM (Building Information Model)

Acronyms

GIS	Geographic Information System	SQL	Structured Query Language
QA/QC	Quality Assurance/Quality Control	Esri	A research group focused on land use planning
COGO	Coordinate Geometry	MXD	Map document file
CADD	Computer Aided Drafting and Design	GPS	Global Positioning Satellite
KML	Keyhole Markup Language	BIM	Building Info Model
CSV	Comma Separated Values file	FTP	File Transfer Protocol
DBF	Data Base File	CD	Computer Disk
HTML	Hypertext Markup Language	DVD	Digital Video Disk
FOIA	Freedom of Information Act		