

Table 9-6

Engineering research doctorate recipients, postgraduation plans by sex and major field of doctorate: 2022

(Number and percent)

Characteristic	All engineering fields	Biological, biomedical, and biosystems engineering	Chemical and petroleum engineering	Civil, environmental, and transportation engineering	Electrical and computer engineering	Engineering technologies	Industrial engineering and operations research	Materials and mining engineering	Mechanical engineering	Engineering, other
Doctorate recipients reporting postgraduation status (number)	9,776	1,152	1,148	1,195	1,946	355	586	832	1,406	1,156
Definite postdoctoral training plans	24.0	29.6	25.3	28.4	15.7	21.4	16.2	27.2	26.6	26.1
Definite employment plans	48.4	36.4	46.3	43.9	59.8	56.9	59.0	42.3	44.3	48.9
Seeking employment or study	25.5	29.8	26.1	26.3	22.7	19.7	22.5	29.0	27.0	23.2
Other status ^a	2.0	4.2	2.0	1.3	1.7	2.0	2.0	1.4	1.8	1.6
Definite postdoctoral training plans (%) ^b										
Postdoc fellowship or research associateship	96.3	94.7	97.6	94.4	95.4	93.4	95.8	98.7	96.3	98.7
Other training or unknown ^c	3.7	5.3	2.4	5.6	4.6	6.6	4.2	1.3	3.7	1.3
Definite employment plans (%) ^d										
Academe	13.6	12.4	6.0	21.7	12.1	11.9	22.8	7.1	13.2	16.6
In tenure track faculty position (%)	46.2	23.1	21.9	56.1	53.9	37.5	67.1	20.0	51.2	30.9
Not in tenure track position (%)	48.7	73.1	65.6	39.5	40.4	58.3	31.6	76.0	43.9	61.7
Government	6.9	3.6	3.2	13.0	3.8	4.0	9.2	6.0	7.4	13.3
Industry or business ^e	74.9	81.1	87.4	59.8	80.7	80.2	61.3	83.8	74.3	62.3
Nonprofit organization	2.9	2.1	2.3	2.7	2.3	3.0	4.0	2.0	2.4	5.7
Other or unknown ^f	1.7	0.7	1.1	2.9	1.0	1.0	2.6	1.1	2.7	2.1
Primary activity ^g										
Research and development	62.9	67.8	72.1	33.0	71.0	64.0	53.8	67.0	65.9	60.6
Teaching	7.2	4.5	4.1	13.4	6.0	6.0	13.0	3.5	8.9	6.5
Management or administration	2.6	2.5	D	3.4	1.3	D	6.6	2.6	1.9	4.5
Professional services and other	27.2	25.2	D	50.2	21.6	D	26.6	27.0	23.3	28.4
Secondary activity ^g										
Research and development	18.3	12.5	13.1	25.3	16.4	16.5	27.8	15.4	18.2	22.4
Teaching	5.5	2.7	2.0	10.1	5.0	5.0	12.4	2.6	4.1	6.7
Management or administration	12.2	18.7	16.2	13.4	7.9	12.5	10.3	15.7	11.5	10.8
Professional services and other	19.6	20.0	18.0	14.2	19.1	19.5	20.2	20.3	24.7	20.7
No secondary activity	44.4	46.1	50.8	37.0	51.6	46.5	29.3	46.1	41.6	39.4
Activity unknown	4.2	4.3	3.8	5.9	3.2	1.0	4.3	2.0	6.3	5.1
Postgraduation location (%) ^h										
United States ⁱ	91.8	95.4	92.1	89.1	91.6	88.5	87.5	92.7	93.8	92.2
Midwest	14.1	13.8	13.4	14.2	10.9	12.6	16.1	14.4	18.9	14.5
Northeast	18.5	29.1	22.5	14.5	14.6	14.4	19.0	19.4	18.5	17.0
South	22.8	22.2	23.9	28.6	19.3	16.2	24.9	18.0	21.3	28.6
West	35.8	29.5	31.7	31.3	46.4	45.0	26.3	40.8	34.8	31.8
Outside the United States	8.0	4.6	7.8	10.8	8.3	11.2	12.0	7.3	6.1	7.7

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(Number and percent)

Characteristic	All engineering fields	Biological, biomedical, and biosystems engineering	Chemical and petroleum engineering	Civil, environmental, and transportation engineering	Electrical and computer engineering	Engineering technologies	Industrial engineering and operations research	Materials and mining engineering	Mechanical engineering	Engineering, other
Location unknown	0.1	0.0	0.1	0.1	0.1	0.4	0.5	0.0	0.1	0.1
Postgraduation location in same state as doctorate institution (%)	36.8	46.1	29.4	45.3	32.6	36.0	25.4	37.7	40.0	35.9
Male doctorate recipients reporting postgraduation status (number)	7,128	632	777	809	1,589	281	422	574	1,139	905
Definite postdoctoral training plans	23.9	30.4	27.5	28.2	15.7	21.0	16.1	27.9	25.8	26.4
Definite employment plans	49.1	37.2	44.7	45.1	60.4	57.3	60.4	39.5	45.0	48.6
Seeking employment or study	24.9	27.8	25.5	25.0	22.3	19.6	21.6	31.0	27.2	23.1
Other status ^a	2.0	4.6	2.1	1.6	1.6	2.1	1.7	1.4	1.8	1.7
Definite postdoctoral training plans (%) ^b										
Postdoc fellowship or research associateship	96.3	93.8	97.2	93.9	94.8	93.2	95.6	99.4	97.3	99.2
Other training or unknown ^c	3.7	6.3	2.8	6.1	5.2	6.8	4.4	0.6	2.7	0.8
Definite employment plans (%) ^d										
Academe	12.9	13.2	D	19.2	11.8	D	20.8	5.7	12.9	15.5
In tenure track faculty position (%)	47.2	D	D	57.1	54.9	D	64.2	D	48.5	27.9
Not in tenure track position (%)	47.2	D	47.1	35.7	39.8	D	34.0	D	47.0	67.6
Government	7.0	D	3.5	12.9	3.8	D	D	D	D	13.9
Industry or business ^e	76.1	82.6	87.9	62.7	81.5	80.1	63.1	86.8	75.6	63.9
Nonprofit organization	2.4	D	D	1.9	1.9	D	D	D	D	4.5
Other or unknown ^f	1.6	0.9	1.4	3.3	1.0	1.2	2.0	0.4	2.0	2.3
Primary activity ^g										
Research and development	64.3	69.1	70.5	31.5	72.7	67.3	52.5	69.7	68.8	62.8
Teaching	6.6	D	3.6	12.6	5.4	D	12.3	D	D	5.5
Management or administration	2.8	D	D	D	D	D	D	D	D	4.3
Professional services and other	26.3	23.8	D	D	D	25.2	D	24.9	21.2	27.4
Secondary activity ^g										
Research and development	18.1	11.2	13.9	24.7	16.2	17.6	28.3	14.5	16.4	22.2
Teaching	5.4	2.7	D	9.7	4.6	6.3	D	D	4.0	6.7
Management or administration	12.0	20.6	D	13.8	7.9	D	D	13.6	12.9	9.8
Professional services and other	20.5	20.2	22.0	14.1	18.8	D	20.5	D	25.2	22.2
No secondary activity	44.0	45.3	46.1	37.6	52.5	44.7	28.3	45.7	41.6	39.1
Activity unknown	4.5	5.1	4.3	6.8	3.4	1.2	4.3	2.6	6.1	4.8
Postgraduation location (%) ^h										
United States ⁱ	91.1	94.4	90.9	86.8	91.1	88.2	87.6	92.0	93.5	91.8
Midwest	14.5	15.0	13.9	14.2	10.9	13.2	14.9	16.0	18.7	15.5
Northeast	17.6	26.5	20.1	14.5	15.0	15.5	17.3	17.6	18.2	17.5
South	23.0	21.1	25.5	28.7	19.9	16.4	26.9	17.3	21.5	28.0

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(Number and percent)

Characteristic	All engineering fields	Biological, biomedical, and biosystems engineering	Chemical and petroleum engineering	Civil, environmental, and transportation engineering	Electrical and computer engineering	Engineering technologies	Industrial engineering and operations research	Materials and mining engineering	Mechanical engineering	Engineering, other
West	35.6	31.4	30.8	28.7	45.2	43.2	26.9	41.1	34.7	30.5
Outside the United States	8.8	5.6	8.9	13.0	8.7	11.4	12.1	8.0	6.3	8.1
Location unknown	0.2	0.0	0.2	0.2	0.2	0.5	0.3	0.0	0.1	0.1
Postgraduation location in same state as doctorate institution (%)	36.9	47.1	28.7	45.5	33.2	35.5	26.9	37.7	40.6	36.8
Female doctorate recipients reporting postgraduation status (number)	2,648	520	371	386	357	74	164	258	267	251
Definite postdoctoral training plans	24.4	28.7	20.8	28.8	15.7	23.0	16.5	25.6	30.0	25.1
Definite employment plans	46.3	35.4	49.9	41.5	57.1	55.4	55.5	48.4	41.6	49.8
Seeking employment or study	27.1	32.1	27.5	29.0	24.6	20.3	25.0	24.4	26.2	23.5
Other status ^a	2.1	3.7	1.9	0.8	2.2	1.4	3.0	1.6	1.9	1.6
Definite postdoctoral training plans (%) ^b										
Postdoc fellowship or research associateship	96.1	96.0	98.7	95.5	98.2	94.1	96.3	97.0	92.5	96.8
Other training or unknown ^c	3.9	4.0	1.3	4.5	1.8	5.9	3.7	3.0	7.5	3.2
Definite employment plans (%) ^d										
Academe	15.7	11.4	D	27.5	13.7	D	28.6	9.6	14.4	20.8
In tenure track faculty position (%)	43.8	D	D	54.5	50.0	D	73.1	D	62.5	38.5
Not in tenure track position (%)	52.1	D	86.7	45.5	42.9	D	26.9	D	31.3	46.2
Government	6.6	D	2.7	13.1	3.9	D	D	D	D	11.2
Industry or business ^e	71.5	79.3	86.5	53.1	77.0	80.5	56.0	78.4	68.5	56.8
Nonprofit organization	4.3	D	D	4.4	4.4	D	D	D	D	9.6
Other or unknown ^f	1.9	0.5	0.5	1.9	1.0	0.0	4.4	2.4	6.3	1.6
Primary activity ^g										
Research and development	59.1	66.3	75.0	36.4	63.5	51.2	57.5	62.1	52.4	53.0
Teaching	8.9	D	5.0	14.9	9.0	D	14.9	D	D	10.3
Management or administration	2.0	D	D	D	D	D	D	D	D	5.1
Professional services and other	30.0	27.0	D	D	D	D	D	30.6	33.0	31.6
Secondary activity ^g										
Research and development	19.0	14.0	11.7	26.6	17.5	12.2	26.4	16.9	26.2	23.1
Teaching	5.7	2.8	D	11.0	6.5	0.0	D	D	4.9	6.8
Management or administration	12.6	16.3	D	12.3	8.0	D	D	19.4	4.9	14.5
Professional services and other	17.1	19.7	10.6	14.3	20.5	D	19.5	D	22.3	15.4
No secondary activity	45.5	47.2	59.4	35.7	47.5	53.7	32.2	46.8	41.7	40.2
Activity unknown	3.4	3.3	2.7	3.8	2.0	0.0	4.4	0.8	7.2	6.4
Postgraduation location (%) ^h										
United States ⁱ	94.0	96.7	94.7	94.1	93.5	89.7	87.3	94.2	94.8	93.6
Midwest	13.2	12.3	12.2	14.4	10.8	10.3	19.5	11.0	19.4	11.2

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Characteristic	All engineering fields	Biological, biomedical, and biosystems engineering	Chemical and petroleum engineering	Civil, environmental, and transportation engineering	Electrical and computer engineering	Engineering technologies	Industrial engineering and operations research	Materials and mining engineering	Mechanical engineering	Engineering, other
Northeast	21.1	32.4	27.5	14.4	12.7	10.3	23.7	23.0	19.4	14.9
South	22.4	23.7	20.6	28.4	16.5	15.5	19.5	19.4	20.4	30.9
West	36.6	27.0	33.6	36.9	51.9	51.7	24.6	40.3	35.1	36.7
Outside the United States	5.9	3.3	5.3	5.9	6.5	10.3	11.9	5.8	5.2	6.4
Location unknown	0.1	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0
Postgraduation location in same state as doctorate institution (%)	36.4	44.7	30.9	44.6	30.0	37.9	21.2	37.7	37.7	32.4

D = suppressed to avoid disclosure of confidential information.

^a Includes doctorate recipients reporting: no plans to work or study, some other type of postgraduation plans, or definite plans for other full-time degree program.^b Excludes doctorate recipients reporting plans for other full-time degree program. Percentages based on number of doctorate recipients reporting definite postdoctoral plans for study.^c Other includes doctorate recipients who reported definite postdoctoral plans for traineeship, internship or clinical residency, or other study.^d Percentages based on number of doctorate recipients reporting definite postgraduation plans for employment.^e Includes doctorate recipients reporting self-employment.^f Other is mainly composed of elementary and secondary schools.^g Percentages based on number of doctorate recipients reporting definite postgraduation plans for employment and primary or secondary work activity.^h Percentages based on number of doctorate recipients reporting definite postgraduation plans and type of plans.ⁱ Includes doctorate recipients with an unknown U.S. region of employment after doctorate, thus the percentages by regions will not sum to the value for United States; see the "Technical Notes" for states or territories included in regions.**Note(s):**

A definite postgraduation commitment includes accepting new employment or a postdoctoral study (postdoc) position or returning to predoctoral employment, while postgraduation employment includes accepting new employment or returning to predoctoral employment that is not a postdoctoral study (postdoc) position. Due to rounding, percentages may not sum to 100. Beginning in 2021, a modified version of the 2020 Classification of Instructional Programs (CIP) codes was used in the survey data collection, and new broad, major, and detailed fields are used in tables reporting data from 2021 to the present; see the field list in table A-4. Therefore, the field of doctorate data prior to 2021 may not be comparable to subsequent years. For more information, see the "Technical Notes" and the SED 2021 Taxonomy Changes Working Paper (available at <https://nces.nsf.gov/pubs/nces23200>).

Source(s):

National Center for Science and Engineering Statistics, Survey of Earned Doctorates.