

Table 9-6

Engineering research doctorate recipients, postgraduation plans by sex and major field of doctorate: 2021

(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)	8,754	1,015	1,197	939	1,866	438	563	601	1,274	861
Definite postdoctoral training plans	26.0	33.6	27.1	29.0	17.2	26.3	16.2	30.9	29.1	30.0
Definite employment plans	41.6	28.3	37.0	34.7	55.4	38.6	59.9	32.1	39.5	40.5
Seeking employment or study	30.3	32.5	34.5	34.6	25.7	33.1	22.7	35.6	30.1	27.1
Other status ^a	2.0	5.6	1.3	1.7	1.7	2.1	1.2	1.0	1.3	2.3
Definite postdoctoral training plans (%) ^b										
Postdoc fellowship or research associateship	95.8	94.7	96.9	95.6	94.1	93.9	95.6	97.8	97.0	95.7
Other training or unknown ^c	4.2	5.3	3.1	4.4	5.9	6.1	4.4	2.2	3.0	4.3
Definite employment plans (%) ^d										
Academe	15.6	15.3	5.6	24.8	13.6	14.8	29.1	8.3	14.5	18.9
In tenure track faculty position (%)	50.9	29.5	36.0	67.9	56.4	52.0	63.3	31.3	41.1	34.8
Not in tenure track position (%)	42.4	68.2	52.0	30.9	39.3	40.0	26.5	62.5	50.7	53.0
Government	7.3	4.2	3.2	13.5	D	D	6.8	6.7	10.5	16.0
Industry or business ^e	71.6	76.3	87.8	53.4	78.0	72.8	57.3	80.3	69.6	57.0
Nonprofit organization	3.5	2.4	2.0	3.4	D	D	5.0	3.1	4.0	7.2
Other or unknown ^f	2.0	1.7	1.4	4.9	1.8	3.6	1.8	1.6	1.4	0.9
Primary activity ^g										
Research and development	65.4	63.2	75.7	33.7	71.4	63.8	61.3	71.3	64.6	68.5
Teaching	7.7	6.1	3.1	14.1	6.6	8.0	12.7	3.9	7.9	8.6
Management or administration	2.5	5.1	D	4.2	0.9	D	5.9	D	2.1	4.8
Professional services and other	24.4	25.6	D	48.0	21.1	D	20.1	D	25.4	18.2
Secondary activity ^g										
Research and development	18.3	16.2	12.5	27.1	18.3	16.0	21.1	15.5	20.7	16.1
Teaching	6.9	3.6	2.2	11.4	6.3	10.4	15.5	3.3	6.0	6.8
Management or administration	11.5	22.4	13.0	14.1	6.9	11.7	7.4	14.9	11.9	13.1
Professional services and other	19.0	18.1	20.4	10.1	20.1	19.6	19.8	21.0	19.0	20.8
No secondary activity	44.3	39.7	51.9	37.6	48.5	42.3	36.2	45.3	42.4	43.2
Activity unknown	4.9	3.5	6.1	5.8	4.2	3.6	4.2	6.2	6.8	3.7
Postgraduation location (%) ^h										
United States ⁱ	90.5	95.1	91.3	85.3	91.3	84.2	88.6	91.6	90.2	92.1
Midwest	14.6	15.8	12.4	14.9	12.1	13.4	16.1	19.0	16.9	15.3
Northeast	16.5	27.7	22.8	11.4	12.6	14.4	19.4	11.6	15.7	14.0
South	25.3	24.0	24.9	34.3	21.6	21.5	27.8	20.3	27.0	27.7
West	33.5	26.9	30.6	23.9	44.7	34.9	24.5	40.6	30.3	33.8
Outside the United States	9.4	4.8	8.7	14.7	8.6	15.8	11.2	8.2	9.7	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	0.2	0.0	0.0	0.1	0.0	0.2	0.3	0.1	0.2
Postgraduation location in same state as doctorate institution (%)	37.7	47.3	30.4	45.5	34.6	37.3	29.0	34.8	43.1	36.4
Male doctorate recipients reporting postgraduation status (number)	6,489	602	845	657	1,542	311	405	415	1,043	669
Definite postdoctoral training plans	25.9	32.7	28.8	30.1	16.7	25.1	17.0	33.0	29.0	29.4
Definite employment plans	42.5	28.4	34.7	35.0	56.7	43.1	59.5	30.4	40.2	40.5
Seeking employment or study	29.6	32.9	34.9	33.0	25.2	29.9	22.5	35.2	29.9	27.4
Other status ^a	1.9	6.0	1.5	1.8	1.3	1.9	1.0	1.0	0.9	2.5
Definite postdoctoral training plans (%) ^b										
Postdoc fellowship or research associateship	95.9	93.4	96.3	97.0	94.2	92.3	95.7	97.8	97.7	96.4
Other training or unknown ^c	4.1	6.6	3.7	3.0	5.8	7.7	4.3	2.2	2.3	3.6
Definite employment plans (%) ^d										
Academe	15.3	17.5	6.8	23.9	13.3	D	29.9	D	12.9	16.2
In tenure track faculty position (%)	51.5	D	D	72.7	53.4	D	62.5	D	44.4	38.6
Not in tenure track position (%)	41.3	D	D	27.3	41.4	50.0	27.8	D	46.3	45.5
Government	7.5	D	D	13.9	3.9	6.7	7.5	5.6	10.5	16.6
Industry or business ^e	72.1	73.7	86.7	55.2	77.9	74.6	56.8	84.9	71.4	58.7
Nonprofit organization	3.2	D	D	2.6	3.1	D	4.6	D	3.6	7.4
Other or unknown ^f	1.9	2.9	1.4	4.3	1.8	3.0	1.2	0.0	1.7	1.1
Primary activity ^g										
Research and development	66.9	69.3	76.4	32.9	72.5	64.3	61.3	70.9	66.8	70.4
Teaching	7.5	5.5	D	13.9	6.3	D	13.5	D	7.4	7.3
Management or administration	2.4	4.9	0.0	D	D	D	6.1	0.0	D	D
Professional services and other	23.2	20.2	D	D	D	26.4	19.1	D	D	D
Secondary activity ^g										
Research and development	18.5	15.3	13.8	29.2	17.9	D	22.6	D	19.9	16.2
Teaching	6.5	D	D	10.6	D	D	D	D	5.1	6.2
Management or administration	11.6	24.5	13.0	14.8	D	D	D	17.1	10.7	12.7
Professional services and other	19.4	D	D	11.1	20.0	20.2	19.6	17.9	20.5	21.5
No secondary activity	44.0	37.4	50.0	34.7	48.6	39.5	34.3	49.6	43.7	43.5
Activity unknown	5.1	4.7	5.8	5.7	4.3	3.7	4.6	7.1	6.7	4.1
Postgraduation location (%) ^h										
United States ⁱ	90.1	95.4	90.9	85.0	91.0	83.5	88.4	90.1	90.2	91.5
Midwest	15.3	19.0	13.1	15.4	12.4	15.6	14.8	19.8	17.9	15.8
Northeast	15.5	24.7	22.6	10.7	11.8	14.6	20.3	10.6	15.4	13.0
South	25.3	23.1	24.4	34.6	21.6	21.7	29.0	20.5	26.5	29.1

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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
West	33.5	27.7	30.2	23.8	44.9	31.6	23.5	39.2	30.1	32.9
Outside the United States	9.8	4.3	9.1	15.0	8.8	16.5	11.6	9.5	9.7	8.3
Location unknown	0.1	0.3	0.0	0.0	0.2	0.0	0.0	0.4	0.1	0.2
Postgraduation location in same state as doctorate institution (%)	37.8	46.5	30.8	47.7	33.6	40.1	30.0	36.1	43.6	36.8
Female doctorate recipients reporting postgraduation status (number)	2,265	413	352	282	324	127	158	186	231	192
Definite postdoctoral training plans	26.5	34.9	23.0	26.2	19.4	29.1	13.9	26.3	29.9	31.8
Definite employment plans	38.9	28.1	42.6	34.0	49.1	27.6	60.8	36.0	36.4	40.6
Seeking employment or study	32.1	32.0	33.5	38.3	28.1	40.9	23.4	36.6	30.7	26.0
Other status ^a	2.5	5.1	0.9	1.4	3.4	2.4	1.9	1.1	3.0	1.6
Definite postdoctoral training plans (%) ^b										
Postdoc fellowship or research associateship	95.5	96.5	98.8	91.9	93.7	97.3	95.5	98.0	94.2	93.4
Other training or unknown ^c	4.5	3.5	1.2	8.1	6.3	2.7	4.5	2.0	5.8	6.6
Definite employment plans (%) ^d										
Academe	16.7	12.1	3.3	27.1	15.1	D	27.1	D	22.6	28.2
In tenure track faculty position (%)	49.0	D	D	57.7	70.8	D	65.4	D	31.6	27.3
Not in tenure track position (%)	45.6	D	D	38.5	29.2	0.0	23.1	D	63.2	68.2
Government	6.5	D	D	12.5	D	D	5.2	9.0	10.7	14.1
Industry or business ^e	70.1	80.2	90.0	49.0	78.6	65.7	58.3	71.6	60.7	51.3
Nonprofit organization	4.5	D	D	5.2	D	D	6.3	D	6.0	6.4
Other or unknown ^f	2.2	0.0	1.3	6.3	1.9	5.7	3.1	4.5	0.0	0.0
Primary activity ^g										
Research and development	60.7	54.4	74.3	35.6	65.6	61.8	61.3	71.9	53.8	61.8
Teaching	8.2	7.0	D	14.4	7.8	D	10.8	D	10.3	13.2
Management or administration	2.8	5.3	D	D	D	0.0	5.4	D	D	D
Professional services and other	28.2	33.3	22.1	D	D	D	22.6	D	D	D
Secondary activity ^g										
Research and development	17.8	17.5	10.0	22.2	20.1	D	17.2	D	24.4	15.8
Teaching	8.2	D	D	13.3	D	D	D	D	10.3	9.2
Management or administration	11.0	19.3	12.9	12.2	D	D	D	10.9	17.9	14.5
Professional services and other	17.8	D	D	7.8	20.8	17.6	20.4	26.6	11.5	18.4
No secondary activity	45.2	43.0	55.7	44.4	48.1	52.9	40.9	37.5	35.9	42.1
Activity unknown	4.3	1.7	6.7	6.3	3.1	2.9	3.1	4.5	7.1	2.6
Postgraduation location (%) ^h										
United States ⁱ	91.6	94.6	92.2	85.9	92.8	86.1	89.0	94.8	90.2	94.2
Midwest	12.6	11.2	10.8	13.5	10.8	6.9	19.5	17.2	12.4	13.7

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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	19.6	31.9	23.4	12.9	16.2	13.9	16.9	13.8	17.0	17.3
South	25.3	25.4	26.0	33.5	21.6	20.8	24.6	19.8	29.4	23.0
West	33.2	25.8	31.6	24.1	43.7	44.4	27.1	44.0	31.4	36.7
Outside the United States	8.3	5.4	7.8	14.1	7.2	13.9	10.2	5.2	9.8	5.8
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 (%)	37.3	48.5	29.4	40.0	40.1	29.2	26.3	31.9	41.2	35.3

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 cases 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):

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 the new broad, major, and detailed fields were used in tables reporting only the most recent data year. Therefore, the field of doctorate data in 2021 may not be comparable to prior years; see the "Technical Notes" for more information, table A-4 for a summary of SED-CIP codes in the new SED field taxonomy, table A-5 for a full list of SED-CIP codes in the new field taxonomy, and table A-6 for the SED-CIP code crosswalk to the historical field taxonomy.

Source(s):

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