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WEST POINT ENGINEERING GRADUATES SURVEY

Mechanical Engineering



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***Office of the Dean
United States Military Academy
West Point New York 10996***

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INSTRUCTIONS

Please complete each question by circling the letter that corresponds to your answer for each multiple-choice question in the booklet. All questions should be answered, except where indicated otherwise.

Free-response questions also are included. They should be answered directly in the questionnaire booklet in the spaces indicated. Should you need more room for your responses, attach additional pages.

Do not enter your name, SSN, or other identifying information in the questionnaire booklet. Results will be reported as group data only. Your responses will remain completely anonymous.

Your participation is important for the validity of the results. Failure to respond will result in no penalty to you; however, full participation is encouraged so that the data will be complete and representative.

When you have finished, ***tear off*** the front cover and instructions page of the questionnaire booklet (to reduce bulk and save postage), ***fold*** the remaining booklet along the lines indicated on the back cover, and ***seal*** it in the pre-addressed envelope provided.

Mail your responses directly to Institutional Research, United States Military Academy, Official Mail & Distribution Center, 646 Swift Road, West Point NY 10996-9901, as shown on the envelope.

We request that you complete and return your questionnaire within 30 days of receipt. If you are unable to meet this suspense, please complete and ***return it as soon as possible***.

Point of Contact for this survey is Ms. Janet T. Wolff, Institutional Research & Analysis, DSN 688-7384/2803 or (845) 938-7384/2803; e-mail: janet.wolff@usma.edu.

MECHANICAL ENGINEERING GRADUATES SURVEY

PART I

Questions 1-6 ask you to rate various components of your engineering education at West Point. In responding to these questions, use the scale below to rate how well your engineering education at West Point prepared you in the following areas.

- A. Excellent
- B. Very Good
- C. Good
- D. Fair
- E. Poor

| <u>Desired Outcome</u> | <u>Rating</u> |
|--|---------------|
| 1. Develop your problem-solving abilities? | A B C D E |
| 2. Establish a sound foundation in engineering design methodology? | A B C D E |
| 3. Understand battlefield systems and operations? | A B C D E |
| 4. Understand current Army technology and emerging technologies? | A B C D E |
| 5. Prepare you for the engineering or engineering-related jobs you (have) held in the Army? | A B C D E |
| 6. Prepare you for your continuing education? | A B C D E |
| 7. Have you taken the Fundamentals of Engineering (FE) Examination (formerly the EIT)? | |
| A. Yes, passed on first attempt. | |
| B. Yes, passed, but not on first attempt. | |
| C. Yes, but have not yet passed. | |
| D. Yes, awaiting results. | |
| E. No – Skip to Question 12. | |
| 8. To what extent was your <u>engineering education</u> at West Point effective in preparing you for the FE Examination? | |
| A. Very great extent | |
| B. Great extent | |
| C. Moderate extent | |
| D. Slight extent | |
| E. Not at all | |

9. Have you taken the Professional Engineering (PE) Examination?

- A. Yes, passed on first attempt.
- B. Yes, passed, but not on first attempt.
- C. Yes, but have not yet passed – **Skip to Question 11.**
- D. Yes, awaiting results – **Skip to Question 11.**
- E. No – **Skip to Question 12.**

10. In which engineering field are you officially registered? (Mark all that apply.)

- A. No specified discipline
- B. Civil Engineering
- C. Electrical Engineering
- D. Industrial Engineering
- E. Mechanical Engineering
- F. Environmental Engineering
- G. Chemical Engineering
- H. Nuclear Engineering
- I. Other

11. To what extent was your engineering education at West Point effective in preparing you for the PE?

- A. Very great extent
- B. Great extent
- C. Moderate extent
- D. Slight extent
- E. Not at all

Questions 12-26 ask you about your experiences since your West Point graduation.

12. Which engineering category most nearly describes the majority of the engineering or engineering-related duties in your Army assignments?

- A. Not applicable; no engineering or engineering-related jobs
- B. Civil
- C. Electrical
- D. Environmental
- E. Mechanical
- F. Systems
- G. Engineering Management

For Questions 13-16, use the scale below.

- A. Strongly agree
- B. Agree
- C. Neither agree nor disagree
- D. Disagree
- E. Strongly disagree

I am confident in my ability to ...

- 13. learn on my own – to identify what I know and don't know about a given problem and find answers to unresolved questions. A B C D E
- 14. learn new aspects of my position on the job. A B C D E
- 15. continue professional development through self-directed study. A B C D E
- 16. undertake advanced graduate study. A B C D E

Indicate which of the following engineering or engineering-related continuing education activities (Q17-23) you have completed?

| Activity | Yes | No |
|---|-----|----|
| 17. Ph.D. in Engineering | A | B |
| 18. Ph.D. in engineering-related field | A | B |
| 19. MS/ME in Engineering | A | B |
| 20. MS in engineering-related field | A | B |
| 21. Courses leading to a graduate degree not yet obtained | A | B |
| 22. Courses not leading to a degree | A | B |
| 23. Non-credit courses taken through professional societies, universities, employers, or the Army | A | B |

24. Please provide the following information for any non-engineering oriented graduate or professional degrees you have begun or completed:

| Degree | Major | Institution | Completed (Yes/No) |
|--------|-------|-------------|--------------------|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

25. Are you a member of a military technical society (SAME, AFCEA, MORS, etc.)?

- A. No, never held membership.
- B. No, not now; was a member.
- C. Yes, but not a very active participant in society activities.
- D. Yes, and a very active participant in society activities.

26. Are you a member of one or more professional engineering societies (e.g., ASCE, ASME, IEEE, etc.)?

- A. No, never held membership.
- B. No, not now; was a member.
- C. Yes, but not a very active participant in society activities.
- D. Yes, and a very active participant in society activities.

27. Are you currently serving on active duty?

- A. Yes – **Skip to Part II, Question 32**
- B. No – **Continue with Question 28**

28. Which of the following describes your professional status as a civilian? (**Mark all that apply.**)

- A. Engineer
- B. Scientist
- C. Educator
- D. Sales/Marketing
- E. Manager/Executive
- F. Entrepreneur
- G. Elected/appointed official
- H. Other professional
- I. Other (unemployed, full/part-time non-professional employee, student, etc.)

29. Which engineering category most nearly describes the majority of the engineering or engineering-related duties in your civilian assignments?
- A. Not applicable; no engineering or engineering-related tasks
 - B. Civil
 - C. Electrical
 - D. Environmental
 - E. Mechanical
 - F. Systems
 - G. Engineering Management
30. Since leaving active service, in which sector of the economy have you worked professionally most of the time?
- A. Business/Industry
 - B. Government
 - C. Education
 - D. Other
 - E. Not applicable (e.g., unemployed, full or part-time non-professional employee, full-time student, etc.)
31. To what extent was your engineering education at West Point effective in preparing you for the engineering or engineering-related tasks you have performed since leaving the Army?
- A. Very great extent
 - B. Great extent
 - C. Moderate extent
 - D. Slight extent
 - E. Not at all
 - F. Not applicable; no engineering or engineering-related tasks

Go to next page.

PART II – PROGRAM SPECIFIC

Based on your professional experiences and accomplishments since graduation, assess the extent to which you feel you were prepared by USMA to do the following (Q32-34):

- A. Very great extent
- B. Great extent
- C. Moderate extent
- D. Slight extent
- E. Not at all

When confronted with a complex mechanical engineering problem, I can ...

32. devise a methodological approach to solve the problem. A B C D E
33. handle ambiguity and imperfect information in developing a solution. A B C D E
34. devise a broad range of creative alternative solutions. A B C D E
35. Which of the following technologies are you most likely to use in solving mechanical engineering problems? (**Mark all that apply.**)
- A. Computer-Aided Design Software
 - B. Math Assistant Software Packages
 - C. Computer Finite-Element Packages
 - D. Others (please specify) _____
36. When approaching a mechanical engineering problem, how often do you work in multidisciplinary teams?
- A. Always
 - B. Frequently
 - C. Sometimes
 - D. Rarely
 - E. Never
37. When working with others in a multidisciplinary team, how often do you assume a leadership role?
- A. Always
 - B. Frequently
 - C. Sometimes
 - D. Rarely
 - E. Never

38. In working with multidisciplinary teams, what sets of skills do you commonly use to effectively solve mechanical engineering problems?

39. What principles (laws) do you typically invoke in approaching a solution to mechanical engineering problems?

40. Have you completed a graduate-level degree in mechanical engineering?

- A. Yes – **Go to Question 41**
- B. No – **Skip to Question 42**

41. To what extent did your undergraduate educational experience prepare you for graduate studies in mechanical engineering?

- A. Very great extent
- B. Great extent
- C. Moderate extent
- D. Slight extent
- E. Not at all

Mechanical Engineering Work Experience. It is very important for us to determine the specific forms of mechanical engineering expertise our graduates provide to the Army and the nation.

42. Please list any active duty positions (long-term work assignments) in which you were required to apply your knowledge of mechanical engineering on the job.

43. If you are no longer on active duty, please list any civilian positions or long-term work assignments in which you were required to apply your knowledge of mechanical engineering on the job.

Thank you for your contributions to the USMA Mechanical Engineering Program.

PART III

ADDITIONAL COMMENTS

If USMA administered surveys **only** via the Internet, how would this influence your participation?

| | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| I would be able to respond to surveys on the Internet | A | B |
| I would be willing to respond to surveys on the Internet | A | B |

Do you have any other comments or suggestions about your engineering education at West Point?
(Use typewriter or word processor on separate sheet(s), if preferred)