United States
Office of Personnel Management

Engineering Group

GS-0800

Mar 1990, TS-95

Workforce Compensation and Performance Service
Classification Programs Division
June 1998, HRCD-5

Main Menu *Exit*

NOTE

This standard has been converted from the original paper format to electronic format without substantive change in series coverage or grading criteria. The standard was reviewed to correct errors that may have been introduced during the conversion process. In some standards minor corrections were made such as updating references to other documents that may have become obsolete, or correcting minor typographical errors in the original standard. Any errors that remain due to conversion to electronic format should be minor and are not intended to change the meaning of the original standard.

If you find page references near the right hand margin of this standard they indicate the pagination of the official, printed version of this standard. For example, a notation "PAGE 2, 4/88, TS-87" would mean that (1) page two of the printed version begins here, (2) the date of issuance was 4/88, and (3) the Transmittal Sheet number was TS-87.

Engineering Group

GS-800

CONTENTS

Page 1, 3/57

COVERAGE[1]

This group includes all classes of positions the duties of which are to advise on, administer, supervise, or perform professional, scientific, or technical work in engineering research, in the investigation or development of engineering projects, or in the development, design, construction, inspection, production, application, standardization, test, opertion, or maintenance of engineering facilities, structures, systems, processes, equipment, devices, or materials. Positions in this group require knowledge of the science or art, or both, by which materials, natural resources, and power are made useful.

I. *Criterion for the classification of professionnl engineering positions.*

The definition of the Professional and Scientific Service in the Classification Act of 1923, as amended, originally provided the basic criterion for the classification of professional positions. This criterion, which is still applied in making such determinations, is as follows:

> Professional series (or occupations) shall include all classes of positions the duties of which are to perform routine, advisory, administrative, or research work which is based upon the established principles of a profession or science, and which requires professional, scientific, or technical training equivalent to that represented by graduation from a college or university of recognized standing.

Thus, a professional position in a recognized branch of engineering comprises duties which require in their successful performance (1) the practical application of basic scientific principles, particularly those of higher mathematics, and physical and engineering sciences; (2.) an intimate knowledge of the fundamental engineering concepts and terminology, the units of measurement, and their interrelationship common to all branches of engineering; (3) a thorough understanding of engineering techniques and methods such as can be gained through 4 years of engineering training in a recognized college or university, or training equivalent in *type, scope* and *thoroughness*.

Page 2, 3/57

II. *Principles controlling application of the basic cnterion for classification of professional engineering positions.*

1. Positions are classified in a professional engineering series when, and only when, performance of the work requires application of professional knowledge and abilities as distinguished from the desirability of, or preference for, such qualifications.

---

[1] This superedes and is to be substituted for the Introductory material for the Engineering Group, GS-800-0, issued in November 1945 under the code of P-800-0. The revision *has* been made in order to provide improved guides for differentiation between professional engineering and related positions

2. The qualifications of present or proposed incumbents are considered in the classification of engineering positions to the extent that such qualifications influence or affect the assigned duties and responsibilities. In general, the nature of the knowledges and abilities applied to the solution of engineering problems is a direct and significant measure of the intrinsic character of the duties performed. However, even though persons with professional qualifications may typically perform certain tasks this, in itself, should not be used as a benchmark or criterion for the identification of professional engineering positions.

3. Engineering-type positions with the same broadly defined assignments and work objectives may be classifiable in different series on the basis of differences in knowledges and abilities required for performance of the work. A full description of most, if not all, classification factors for an engineering position should reflect the nature of the required knowledges and abilities. However, the primary factor to be considered in classifying engineering positions as professional is the qualifications required factor.

4. Professional-nonprofessional determinations and grade-level determinations are independent of each other.

III. *Nature of knowledges and abilities required for professional engineering positions.*

Those portions of professional engineering curricula offered by colleges and universities of recognized standing that are essential for performance of professional engineering work comprise (a) a basic foundation, particularly in the mathematical and physical sciences, the most important of these being calculus, physics, and chemistry, (b) subsequent courses indicating the special application of such basic sciences to engineering in general, such as engineering mechanics, engineering materials, hydraulics, thermodynamics, etc.; (c) terminal courses consisting of the more specialized professional courses developing the direct application of previous basic courses to a particular branch of engineering.

Page 3, 3/57

Review of the nature of the courses required reveals that the subject matter is of such intensity and scope that it cannot be acquired through on-the-job experience alone except with great difficulty and only in rare instances. Furthermore, the worth of the educational process involved in a full engineering curriculum is measured not only by the quantity and quality of information, but also by the insight, flexibility, and versatility developed. The engineering curriculum is a progressive fundamental, broad, intensive, and well-rounded course of study which is directed and organized for the definite objective of giving a person the basic tools and capacities needed for progressing into one of many specialties.

Illustrative of professional knowledges and abilities which individually or collectively are significant in distinguishing professic.nal engineering positions are the following:

1. Knowledge of diversified, fundamental scientific and engineering concepts, phenomena, and relationships, and ability to apply such knowledge to theoretical and practical engineering problems with versatility, judgment, and perception.

2. Knowledge of advanced mathematical techniques, such as those gained through study of calculus and differential equations.

3. Ability to organize, analyze, interpret, and evaluate scientific engineering problems and prediction of results.

4. Knowledge of the development and derivation of formulas and relationships, the basic assumptions made, and the limitations nnd areas of applicability of established engineering principles, methods, and techniques.

5. Knowledge of and ability to adapt principles, methods, and techniques of related professional disciplines.

6. Ability through study to keep abreast of changes in scientific knowledge and engineering technology, and to utilize information gained thereby in the solution of theoretical or practical engineering problems.

Generally, there has been a continuing growth and expansion of the volume and intensity of scientific knowledge required for practice in professional engineering fields, with a corresponding increased emphasis in engineering education on basic science, theory, and principles. This evolution of the general field of knowledge together with the development of improved guides, standards, and established methods and short-cuts have made possible the development and identification of many related areas of engineering-type work--some involving considerable complexity --which can be and are being performed by engineering technicians.

Page 4, 3/57

IV. *Characteristics of professional engineeqing positions*

In consideration of the basic criterion, professional engineering positions are characterized by the required application of professional engineering knowledges and abilities to the solution of engineering problems of appropriate character. Such required application may be based on one or more of the following illustrative conditions of work:

1. Engineering problems of such complexity and novelty that the intensity, advanced nature, and breadth of knowledge applied directly in the solution of the engineering and related scientific problems can be readily demonstrated as inherently beyond the capacity of specialized technicians and therefore requiring professional education and experience. Illustrative are the analysis and prediction of vibrations in complex structures under unusual loads, research on the thermodynamics of high-velocity fluids, and the development of analog models of complex systems. In positions with such assignments, specific duties can be readily identified as requiring professional knowledges and abilities.

2. Final responsibility for design, design analysis, and prediction of the characteristics and safety of buildings, utilities, ancl other structures, when performance of the work includes discharge of accountability for the adequacy and accuracy of engineering and scientific

knowledges applied. Because of the public interest, such positions typically require registration as a professional engineer. The required application of professional knowledges and abilities is inherent as a matter of public policy in the delegated responsibility for the protection of life, health, and property.

3. Responsibility for planning, coordinating, or directing engineering projects or programs requiring the recognition and identification of engineering problems and evaluation of methods for their solution. Illustrative are positions which involve (a) planning and managing construction programs with broad engineering responsibilities for site investigation, survey, design modification and approval, material and cost estimating, etc.; (b) determining requirements to be satisfied by prototype developmental models or designs; or (c) determining requirements, planning, analyzing, and interpreting results of technical evaluation projects, where precedents are not directly applicable.

Page 5, 3/57

In positions with such assignments, it is sometimes difficult to isolate duties (e.g., derivation of formulas) which demonstrate the required application of professional knowledges and abilities or to determine the character of applied knowledges through observation of the work. It is the specified or inherent responsibility for recognizing and defining engineering problems and evaluating methods for their solution which requires the broad background of professional education and experience needed for full performance of the work. In such cases, professional knowledges and abilities are applied as essential elements of required insight into and knowledge of physical phenomena and relationships underlying consideration of the varied engineering factors of performance, cost, strength, size, durability, safety, etc., and the limitations and potentialities of engineering methods and techniques.

4. Assignments which are similar to those of technicians who apply an intensive knowledge of engineering practice and methods in a narrow, specialized area, but where there is a specified, justifiable requirement for the application of professional engineering problems. Illustrative are design assignments which require the exercise of initiative, judgment, and resourcefulness to reconcile conflicting requirements of cost, safety, size, strength, performance, standardization, operation, etc. Positions with assignments requiring the development of optimum solutions to practical design problems typically provide an inherent oppor tunity for the application of professional knowledges and abilities and have generally been considered to require professional engineering qualifications. However, since technicians can and do solve such problems, the positions are professional only when there is a specified, justifiable requirement that the work be performed on the basis of professional knowledge of and insight into the physical phenomena and relationships underlying consideration of the various engineering factors and methods.

In organizations where the work may be and should be carried out in large measure by technicians, there is typically a justifiable requirement for the employment of some professional engineers. The specified requirement for the application of professional knowledges and abilities may be based on the need for (a) improvement of efficiency and quality of the work performed, (b) insurance of validity of predicted performance, (c) balanced teams of optimum productivity

and versatility in the application of science and practical art, (d) provision of promotion ladders to full professional engineering positions of higher grade, or (e) development of new solutions to engineering problems.

Page 6, 3/57

For example, in an organization engaged primarily in the design of piping installations using standardized materials, parts, and assemblies which have been used in similar installations, there may arise assignments requiring development of prototype installations with different characteristics of size, capacity, efficiency, durability, economy, etc. Occasional new types of assignments requiring exploratory analyses of possible design approaches and criteria may be of such consequence as to require use of professional engineers in supervisory or staff specialist positions to fill in gaps in available scientific and technologic knowledge required for the work.

Also, performance of full professional work at the higher grade levels typically requires extensive experience in the routine solution of engineering problems of limited scope to acquire the needed knowledge of established practice and precedents, and to become adept at the particular engineering activity. For example, a structural engineer needs to design reinforced concrete beams for a period of time to develop judgment in selecting trial sections for beams and acquire practical knowledge of engineering practice and precedents as well as theoretical proficiency in the specialty. Thus in order to provide practical experience for the development of professional engineers and thereby provide promotion ladders to full professional positions of higher grade level in the organization, positions which are similar to those of technicians may require the application of profesional qualifications to meet the needs of a career staffing program.

5. Training assignments which neither require nor provide an opportunity for the direct application of professional knowledges and abilities in the solution of engineering problems, but where the professional career development aspects of the position alone justify imposition of the professional requirement. Such trainee positions are professional when (a) the technician-type assignments are designed prirnarily to provide practical experience to prepare the academically trained employee for assumption of a full range of professional work and responsibility; (b) there is a direct line of promotion to full professional positions in the organization; (c) the close and detailed supervision exercised over the position is directed in part to the professional development of the employee; and (d) reading and study assignments in addition to productive work assignments are typical.

Page 7, 3/57

V. *Characteristics of engineering technicum positions*

Although most engineering technician positions involve the performance of tasks of relatively restricted scope, many such positions resemble professional engineering positions of comparable level because of one or more of the following characteristics:

1. Expert, specialized knowledge of a narrow range of activity such as tool design, installation of electronic equipment, con struction estimating, specification writing, etc., acquired through intensive on-thejob training and experience in the application of methods and techniques.

2. The application of principles of physical science and mathematics, including algebra and trigonometry, to the solution of engineering problems.

3. The application of highly developed instrumental skills.

4. Independent performance of technical work of a high degree of difficulty requiring the exercise of originality, initiative, and practical judgment in the application and adaptation of stand ardized engineering techniques and methods.

For example, in some engineering organizations concerned primarily with practical engineering problems in conventional areas of endeavor, e.g., design and construction of buildings and utilities on military posts, almost all of the detailed engineering work performed requires limited reference to basic scientific considerations. Most of the engineering problems have been repeatedly encountered by engineers. The methods of attack on the best solution have been established and formulas and guides have been developed and published in numerous textbooks and handbooks. Although calculus and scientific principles may have been applied in derivation of the formulas, the application of the formulas to the practical problems encountered is typical of technician positions.

Page 8, 3/57

Of particular significance in appreciation of the nature of engineering technician positions and how they differ from professional engineering positions is the emergence of the technical institute as an increasingly important source of basic training for engineering technicians. The curricula of technical institutes accredited by the Engineers Council for Professional Development are: "Technological in nature, employing the application of physical science and the techniques of mathematics to the solution of practical problems, and comprising a prescribed sequence of related courses in a specific field, though not excluding a reasonable amount of elective subject matter."

Such curricula are of post-high-school level, emphasize reason ing processes rather than craft skills, and are designed to prepare individuals for various technical positions or lines of activity related to professional engineering work. The programs are briefer and more limited in scope but in the same general fields as professional engineering curricula.

Vl. *Classification of engineer and techncian positions*

Some engineering-type assignments are so theoretical and complex and some are so simple and routine that the positions with such assignments can be readily classified as engineer or technician in accordance with the basic criterion of knowledges and abilities required.

However, it is sometimes difficult to determine whether a given set of tasks actually require the services of a professional engineer or a technician. Such difficulty arises from the similar nature of the functions, objectives, and work products and because of the emerging technician areas of work which do not require the appli cation of professional knowledge and abilities but which have traditionally been performed by engineers. Notwithstanding the similarity of the work product, engineer and technician positions will involve significant differences in specific duties, responsibilities, and qualification requirements which will be reflected in the various classification factors.

In consideration of the basic principle that positions are classified in a professional engineering series when, and only when, performance of the work requires application of professional knowledges and abilities, engineering-type positions are generally classifiable in a technician series unless there is a stated basis for requiring application of professional qualifications. The basis for the required application of professional qualifications should be contained or reflected in the various classification factors includ ing the nature and variety of work, the recommendations and decisions made, the nature of available guidelines, the supervision received and exercised, the originality required, and the knowledges and abilities required.

Page 9, 3/57

Some engineering-type assignments are typically not of professional character in that the engineering problems can be solved and the work can be performed by application and adaptation of established empirical methods, design precedents, and practical judgment and ingenuity with only an elementary grasp of basic scientific principles. Positions defined in terms of such assignments characteristically do not involve professional work and do not require the application of professional knowledges and abilities. Under these circumstances, the positions are properly classifiable in a technician series.

On the other hand, a position which involves the accomplishment of similar work may be properly classifiable in a professional series when the position is defined appropriately by management so as to require professional qualifications. This may be done, for example, by (a) specification of justifiable performance requirements that the development, evaluation, and selection of optimum approaches to and solutions of engineering problems of appropriate character be based on the application of knowledge of and insight into the underlying physical phenomena and relationships, or (b) assignment of additional duties of professional character such as to keep abreast of pertinent scientific research and development and utilize or consider any applicable scientific or engineering principles and techniques found in the literature as possible alternatives to established rule-of-thumb or standard analytical methods. When a position involves assigned responsibility for applying scientific knowledge to the evaluation of guides or alternative approaches (e.g., the use of new analytical techniques to predict performance), the position is properly classifiable as professional even though the work may be subsequently performed using established standard

practice such as a technician might apply. However, such assignments should be planned to provide optimum utilization of engineering talent.

Conversely, some assignments of a type normally requiring professional engineering qualifications may be so defined as to establish the position as technician in character. For example, responsibility for the noncritical design of certain types of structures normally requiring lengthy, intricate stress analyses may be assigned to an experienced and skilled designer who is expected to perform the work using established design standards, rule-of-thumb, and experienced practical judgment in adapting within certain limits precedent designs for similar structures. The position as established does not require the application of professional knowledges and abilities, should be described to reflect fully the methods and means for accomplishment of the work, and is properly classifiable in the technician series. The work may be performed on such a basis because of emergency considerations which preclude desirable professional engineering analyses, or as a result of standardization of design practice.

Page 10, 3/57

Therefore, for the performance of certain kinds of engineering-type work, positions may be established as professional or technician dependent upon the assignment of required application of professional knowledges and abilities as reflected in the various classification factors.

The needs of an organization for professional competence in the performance of assigned functions should be determined, of course, by line management at the time of initial establishment of engineering positions. Such determinations can and should be considered in the assignment of duties and delegation of responsibilities and accordingly represented in the described requirements of the work of individual positions. The classification process normally reflects such requirements as indicated by management officials. However, the decision that the position as established truly requires professional qualifications depends ultimately on the job as it functions.
Since the primary characteristic of professional engineering positions is the required application of professional knowledges and abilities, a person who does not possess and cannot apply professional knowledges and abilities cannot, by definition, perform professional work. Thus, the assignment to a professional engineering position of such a person typically results in material changes in the intrinsic nature of the duties and responsibilities. These changes typically require redescription of the position and classification in a technician series.

Page 11, 3/57

Thus, when management desires to appoint an employee without professional qualifications to perform the work which is similar to that performed by professional engineering personnel, consideration should be given to establishment of a new technician position appropriately described to reflect the technician-type performance. Management action to establish positions to fit the qualifications of proposed incumbents leads to maximum utilization of available personnel.

Where there is a clear requirement for the direct application of advanced theoretical knowledge it is easy to determine in the classification process that professional engineering knowledges and abilities are applied to the work. However, in borderline cases, the determination that the work is or is not characterized by the application of professional knowledges and abilities may be difficult

yet essential to the classification of the position as constituted in the actual work situation. In such cases, position classifiers and subject-matter specialists on rating panels of Boards of Examiners can provide advice and assistance to management officials.

VII. *Explanatory statement concerning the criteria used in the establishment of research engineering classes for guidance in the interpretation of the coverage of research classes in various engineering series.*

Basic Principles

1. The established academic disciplines (chemistry, physics, aeronautical engineering, metallurgy, electrical engineering, etc.) which are universally defined, recognized, and accepted as professions by academic institutions, industry, and Government provide the basic framework for the classification of professional engineering and physical science positions. Whether an occupation is placed in the engineering group or the physical sciences group depends upon whether the nature of the work and the qualifications required for its performance are predominantly identified with an engineering or physical science discipline. It is the common core of professional knowledges and abilities representing a discipline required for performance of the work which distinguishes series within occupational groups. Areas of application or investigation are of secondary significance. They are sometimes recognized as specializations within a series.

Page 12, 3/57

2. Borderline or multidiscipline positions which involve to a substantial degree knowledges and abilities in two or more disciplines are classified in the series for which the predominant and primary qualifications arc characteristic. Appropriate qualification standards provide flexible approaches which do not restrict recruiting to the specialized field reflected in the classification of the position. In some cases, where large numbers of multi-discipline positions constitute what may be considered to be a new profession or occupation with a common core of duties and qualifications required, a new series is established, e.g., Soil Conservation Series.

3. Positions are classified on the basis of the duties, responsi bilities, and qualification requirements of the individual positions and not on the basis of the collective duties, responsibilities, and qualification requirements of a group of positions. Thus the scientific team concept is recognized in classification. Many research problems require a coordinated attack by a team of scientists representing varying disciplines. The series classification of the positions is based on the professional knowledges and abilities of individual team members required to be applied by individual team members in connection with their contributions to the project rather than the specialized knowledges characterizing the object of investigation or area of application.

4. Classes generally strike a compromise between those which are extremely broad with limited usefulness and those which are extremely narrow based on the highly specialized knowledges

required for full performance on individual research projects. Classes in different occupations typically involve different degrees of refinement dependent upon the relative significance of diferences and similarities among the positions in the occupation, the nature of agency programs and organization, and other factors. Classes are as broad and as narrow as necessary to meet the varying needs of the Federal Government.

5. Positions are classified first to series and then to specialization. Thus the definition of a specialization in the Materials Engineering Series, for example, may properly encompass work similar to that described in the definition of a specialization in the Metallurgy Series. The difference in the coverage of the two specializations in different series is not based on the wording of the specializations but on the differences in the coverage of the two series, that is, positions in the Materials Engineering Series involve typically work on both metals and nonmetallic materials.

Page 13, 3/57

6. The distinctions between engineering research positions in the GS-0800 Group and physical science research positions in the GS-1300 Group are not based primarily on determinations that the research is basic or applied. Standards for various engineering series include basic research as well as applied research, whereas standards for physical science series such as Physics, Chemistry, and Metallurgy include applied functions such as type test, production control, and pilot plant operation. The distinctions between research positions in the two groups are based primarily on the nature of the knowledges and abilities required for the work as these relate to the disciplines involved.

Illustration of the foregoing prnciples

Positions involving basic research in aircraft aerodynamics are typically interdisciplinary between aeronautical engineering and physics. Positions involving such work are generally classifiable as Aeronautical Research Engineer (Aerodynamics) since aerodynamics is a characteristic of aeronautical engineering curricula, whereas physics curricula rarely include courses in aerodynamics or more than a single course in general fluid mechanics. Such positions sre sometimes classifiable in the Mechanics classes of the Physics Series, GS-1310, dependent upon a number of factors which individually or in combination lead to the conclusion that the physics discipline is predominant. Some of these factors are:

1. The nature of the work objectives--whether it involves significant considerations of practicality, performance, design, maintenance, production, and other typically engineering functions or is restricted to study of scientific phenomena and theory, characteristic of physics.

2. The nature of the approach--whether empirical solution of a problem, characteristic of engineering, or the application and extension of theoretical concepts, characteristic of physics.

3. The nature of the knowledges and abilities required to be brought to bear on assigned problems, e.g., applied aspects of aerodynamics, characteristic of aeronautical engineering, or theoretical knowledge of general fluid mechanics, characteristic of physics.

Page 14, 3/57

4. The nature of the background of knowledges and abilities of the incumbent as these influence or affect the methodology and intrinsic character of the work performed.

5. The nature of the research program as it relates to lines of promotion, career staffing systems, and other factors affecting the qualifications required for the work.

Page 15, 3/57

VIII. *The use of professional engineering standards in the evaluation of technician positions in grades GS-9 and above*'

Professional engineering standards for grades GS-9 and above may be used with caution in classifying technician positions. Careful consideration needs to be given to any significant differences in required scope and intensity of theoretical and practical knowledge and insight. There are some situations where the qualifications required for the work of professional classes described in the standards are so different from the qualifications required for the work of a nonprofessional position with somewhat similar duties and responsibilities that the differences have a marked impact on the grade level of the work performed.

Illustrative are professional standards which cover scientific functions such as the planning or evaluation of engineering research where the grade level of the work performed reflects in large degree the level of scientific competence of the incumbent. In such characteristically-professional situations, differences in the depth of analysis of problems and in qualifications required may warrant evaluation of a technician position at a grade other than that set forth in the professional standards for superficially similar duties. Thus, for some assignments differences in qualifications applied to the work may result in very real grade level distinctions in the work performed by technicians and that performed by professional engineers. These same distinctions are important in classifying professional positions also.

On the other hand, there are many work situations where differences in the kind of qualifications required (i.e., professional or nonprofessional) do not affect materially the grade level of the work, so that in the evaluation of nonprofessional positions the professional standards may be applied directly without particular emphasis on these differences. This is evident in occupational areas such as construction supervision, cost estimating, safety program administration, etc., where the relative intensity of knowledge of fundamental sciences plays a very minor role in evaluating grade levels of professional engineering positions.

For example, many safety engineer positions classifiable in grade GS-12 on the basis of the scope and magnitude of the safety progrram typically involve a small proportion of time on work requiring knowledge of engineering and scientific principles usually not exceeding the GS-9 or GS-11 grade level. Even though that minor portion of the work that requires engineering

knowledge may control the series classification, the professional or nonprofessional character of that work is not material in determining the grade level of the total position.

Page 16, 3/57

The knowledges and abilities required for professional work are different in kind from those required for nonprofessional work, but not necessarily different in grade level. Professional work characteristically requires scientific knowledge superior to that required for nonprofessional technical work. However, similar nonprofessional technical work may require superior technical or administrative qualifications applicable to the specific work assignments based on a more comprehensive background of practical experience, training, and skill in applying knowledge of precedents, guides and techniques. In evaluating grade levels of nonprofessional technical positions, the practical knowledge and skill of the technician may fully compensate for the scientific knowledge typical of professional engineering classes. For some types of work which demand primarily practical "know-how" rather than scientific knowledge, nonprofessional personnel may be better qualified than professional engineers.

The work performed by technicians typically differs from similar work performed by professional engineers in terms of the specific knowledges applied, details of methodology, and other factors. However, in the absence of any significant differences in work assignments and in the major or grade-controlling duties and responsibilities, there is no basis for assuming a difference in *level* of the qualifications required factor. Thus, the grade level of the position does not depend on whether it is classified in a professional or nonprofessional series.

Since the grade level of a position is not directly affected by the determination that the body of knowledge required to be applied to the work of the position is professional or nonprofes sional in character, professional engineering standards may be used in classifying nonprofessional engineering-type positions provided appropriate consideration is given to all factors. Be cause of the trainee or developmental aspects of some GS-5 and GS-7 professional engineerinK classes, the professional standards at those levels are generally not appropriate for use in classifying technician positions.