TÀI_LIỆU trích trong Tập_san P.E. 1976.

Position Descriptions and Recommended

	Engineer I/II	Engineer III	Engineer IV	Engineer V
General Characteristics	This is the entry level for professional work. Performs assignments designed to develop professional work knowledges and abilities, requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives.	Independently evaluates, selects, and applies standard engineering techniques, procedures, and criteria, using judgment in making minor adaptations and modifications. Assignments have clear and specified objectives and require the investigation of a limited number of variables. Performance at this level requires developmental experience in a professional position or equivalent graduate level education.	As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.	Applies intensive and diversified knowledge of engineering principles and practices in broad areas of assignments and related fields. Makes decisions independently on engineering problems and methods, and represents the organization in conferences to resolve important questions and to plan and coordinate work. Requires the use of advanced techniques and the modification and extension of theories, precepts and practices of his field and related sciences and disciplines. The knowledge and expertise required for this level of work usually result from progressive experience.
Direction Received	Supervisor screens assignments for unusual or difficult problems and selects techniques and procedures to be applied on nonroutine work. Receives close supervision on new aspects of assignments.	Receives instructions on specific assignment objectives, complex features, and possible solutions. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.	Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.	Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.
Typical Duties & Responsibilities	Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.	Performs work which involves conventional types of plans, investigations, surveys, structures, or equipment with relatively few complex features for which there are precedents. Assignments usually include one or more of the following: Equipment design and development, test of materials, preparation of specifications, process study, research investigations, report preparation, and other activities of limited scope requiring knowledge of principles and techniques commonly employed in the specific narrow area of assignments.	Plans, schedules, conducts, or coordinates detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of principles and practices of related specialties.	One or more of the following: (1) In a supervisory capacity, plans, develops, coordinates, and directs a large and important engineering project or a number of small projects with many complex features. A substantial portion of the work supervised is comparable to that described for engineer IV. (2) As individual researcher or worker, carries out complex or novel assignments requiring the development of new or improved techniques and procedures. Work is expected to result in the development of new or improved techniques and procedures. Work is expected to result in the development of new or refined equipment, materials, processes, products, and/or scientific methods. (3) As staff specialist, develops and evaluates plans and criteria for a variety of projects and activities to be carried out by others. Assesses the feasibility and soundness of proposed engineering evaluation tests, products, or equipment when necessary data are insufficient or confirmation by testing is advisable. Usually performs as a staff advisor and consultant as to a technical speciality, a type of facility or equipment, or a program function.
Responsibility for Direction of Others	May be assisted by a few aides or technicians.	May supervise or coordinate the work of draftsmen, technicians, and others who assist in specific assignments.	May supervise or coordinate the work of engineers, draftsmen, technicians, and others who assist in specific assignments.	Supervises, coordinates, and reviews the work of a small staff of engineers and technicians, estimates manpower needs and schedules and assigns work to meet completion date. Or, as individual researcher or staff specialist may be assisted on projects by other engineers or technicians.
Typical Position Titles	Junior Engineer, Associate, Detail Engineer, Engineer-in-Training, Ass't. Research Engineer, Construction Inspector.	Engineer or Assistant Engineer: Project, Plant, Office, Design, Process, Research, Inspector, Engineering Instructor.	Engineer or Assistant Engineer: Resident, Project, Plant, Office, Design, Process, Research, Chief Inspector, Assistant Professor.	Senior or Principal Engineer: Resident, Project, Office, Design, Process, Research, Ass't. Division Engineer, Associate Professor, Project Leader.
Education	Bachelor's Degree in engineering from an ECPD accredited curriculum, or equivalent, plus appropriate continuing education.			
Registration Status	Certified Engineer-in-Training		Registered Professional Engineer	
Typical Professional Attainments	Member of Professional and Technical Societies (Associate Grade or Equivalent)		Member of Professional Society (Member Grade)	
			Member of Technical Society (Associate Grade or Equivalent)	Member of Technical Society (Member Grade) Publishes engineering papers, articles, text books, or r
Income Range (Percent of Specified Income Base Rate)	$12,870—$18,590 (90%—130%)	$17,160—$24,310 (120%—170%)	$21,450—$30,030 (150%—210%)	$26,455—$36,465 (185%—255%)

Income Ranges for Engineers

Engineer VI	Engineer VII	Engineer VIII	Engineer IX
Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation, and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside his organization with responsibility for acting independently on technical matters pertaining to his field. Work at this level usually requires extensive progressive experience.	Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive engineering activities. Initiates and maintains extensive contacts with key engineers and officials of other organizations and companies, requiring skill in persuasion and negotiation of critical issues. At this level individuals will have demonstrated creativity, foresight, and mature engineering judgment in anticipating and solving unprecedented engineering problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse engineering activities.	Makes decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive engineering programs and activities of outstanding novelty and importance.	An engineer in this level is either (1) in charge of programs so extensive and complex as to require staff and resources of sizeable magnitude (e.g., research and development, a department of government responsible for extensive engineering programs, or the major component of an organization responsible for the engineering required to meet the objectives of the organization); or (2) is an individual researcher or consultant who is recognized as a national and/or international authority and leader in an area of engineering or scientific interest and investigation.
Supervision received is essentially administrative, with assignments given in terms of broad general objectives and limits.	Supervision received is essentially administrative, with assignments given in terms of broad general objectives and limits.	Receives general administrative direction.	
One or more of the following: (1) In a supervisory capacity (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance, or (b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his responsibilities generally require a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker conceives, plans, and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. (3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e., subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting his organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments.	One or both of the following: (1) In a supervisory capacity is responsible for (a) an important segment of the engineering program of an organization with extensive and diversified engineering requirements, or (b) the entire engineering program of an organization when it is more limited in scope. The overall engineering program contains critical problems the solution of which requires major technological advances and opens the way for extensive related development. The extent of his responsibilities generally requires several subordinate organizational segments or teams. Recommends facilities, personnel, and funds required to carry out programs which are directly related with and directed toward fulfillment of overall organization objectives. (2) As individual researcher and consultant is a recognized leader and authority in his organization in a broad area of specialization or in a narrow but intensely specialized field. Selects research problems to further the organization's objectives. Conceives and plans investigations of broad areas of considerable novelty and importance for which engineering precedents are lacking in areas critical to the overall engineering program. Is consulted extensively by associates and others with a high degree of reliance placed on his scientific interpretations and advice. Typically, will have contributed inventions, new designs, or techniques which are regarded as major advances in the field.	One or both of the following: (1) In a supervisory capacity is responsible for (a) an important segment of a very extensive and highly diversified engineering program, or, (b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance.	
Plans, organizes, and supervises the work of a staff of engineers and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual research or staff specialist may be assisted on individual projects by other engineers or technicians.	Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to Engineer VI, or, as individual researcher and consultant, may be assisted on individual projects by other engineers and technicians.	Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to Engineer VII, or individual researchers some of whose positions are comparable to Engineer VII and sometimes Engineer VIII. As an individual researcher and consultant may be assisted on individual projects by other engineers or technicians.	
Senior or Principal Engineer, Division or District Engineer, Production Engineer, Assistant Division, District or Chief Engineer, Consultant, Professor, City or County Engineer.	Principal Engineer, Division or District Engineer, Department Manager, Director or Assistant Director of Research, Consultant, Professor, Distinguished Professor or Department Head, Assistant Chief or Chief Engineer, City or County Engineer.	Chief Engineer, Bureau Engineer, Director of Research, Department Head or Dean, County Engineer, City Engineer, Director of Public Works, Senior Fellow, Senior Staff, Senior Advisor, Senior Consultant, Engineering Manager.	Director of Engineering, General Manager, Vice President, President, Partner, Dean, Director of Public Works.
s presentations, gives lectures, provides training, etc.			
$31,460—$42,900 (220%—300%)	$37,180—$51,480 (260%—360%)	$42,900—$64,350 (300%—450%)	Open Negotiated