

**MANUAL OF
PROFESSIONAL
PRACTICE FOR
ELECTRONICS
ENGINEERS**

I. CODE OF ETHICS FOR ELECTRONICS ENGINEERING PRACTITIONERS

FOREWORD

Honesty, justice and courtesy form a moral philosophy which, associated with mutual interest among men, constitutes the foundation of ethics. The electronics engineer should recognize such a standard, not in passive observance, but as a set of dynamic principles guiding his conduct and way of life. It is his duty to practice his profession according to this Code of Ethics and Conduct.

The keystone of professional conduct is integrity. Hence, it behooves the electronics engineer to discharge his duties with fidelity to the public, his employers and his clients, and with fairness and impartiality to all. It is his duty to interest himself in public welfare, and to be ready to apply his special knowledge for the benefit of mankind. He should uphold the honor and dignity of his profession and avoid association with any enterprise of questionable character. In his dealings with fellow engineers, he should be fair and tolerant.

RELATIONS WITH THE STATE

1. Each and every engineer shall recognize and respect the supreme authority of the State as expressed through its laws and implemented by its agencies, whenever and wherever such laws do not infringe upon the rights and privileges of citizens as guaranteed by the Constitution.
2. He shall recognize that the well-being of the public and the interest of the State are above the well-being and interest of any individual.
3. In the interest of justice, he shall aid the State, if and when the technology is needed for the prevention and/or prosecution of unjust, criminal, or unlawful acts.
4. In the interest of good government, he shall in every way possible extend cooperation to the State in the accomplishment of its goals and objectives.
5. In the interest of social efficiency, he shall extend assistance, guidance and training to all subordinates under his jurisdiction in order to increase their skill and ability, knowledge and experience for the purpose of eventually increasing their responsibilities.
6. In the interest of the national economy and well-being, he shall always strive in the execution of his work with optimum efficiency, economy and safety.
7. In the interest of national security, the State shall be given primary considerations in all his inventions and/or devices on electronics and related fields that are useful for national security and defense.

8. In the event of national emergency, he shall offer his technology, skill, ability and experience to the service of the State, even if it will involve personal sacrifices.

RELATIONS WITH THE PUBLIC

9. He shall interest himself in public welfare and be ready to apply his special knowledge for the benefit of mankind.
10. He shall guard against conditions that are dangerous or threatening to life, limb or property on work for which he is responsible, or if he is not responsible, he shall promptly call such conditions to the attention of those responsible so that the conditions can immediately and effectively be corrected.
11. He shall have due regard for the safety of life and health of the public who may be affected by the work for which he is responsible.
12. He shall endeavor to extend public knowledge of electronics engineering and he shall strive to win or maintain the public confidence by discouraging the spread of untrue, unfair and exaggerated statements regarding his profession.
13. As a witness before a court, commission and/or other tribunal, he shall express an opinion only when it is founded on adequate knowledge and honest conviction.
14. He shall not issue statements on matters connected with public policy, any *ex-parte* statements, criticisms, or arguments which are inspired or paid for by private interest, unless he identifies on whose behalf he is making the statements.
15. He shall refrain from expressing any public opinion on an engineering subject unless he is fully familiar and knowledgeable with all the facts relating to the subject.
16. His integrity shall be unquestionable and he shall discharge his duties and responsibilities with fidelity to the public, his employers and clients and with fairness and impartiality to all.

RELATIONS WITH CLIENTS, EMPLOYER AND LABOR

17. He shall act in professional matters as a faithful or trustee, and treat as confidential all matters and information concerning the business affairs, technical processes, etc., of his clients and/or employers.
18. He shall inform his client or employer of any financial interest on inventions, devices, equipment or any other thing, before undertaking any engagement in which he may be called upon to decide on the use thereof.

19. He shall not accept any other compensation, financial or service or otherwise, except from one interested party for a particular service or other services related therewith without the consent of all parties concerned.
20. He shall exercise fairness and justice when dealing with contracts between his clients or employers and the contractors.
21. He shall not accept any commissions or allowances, directly or indirectly from contractors, suppliers and all other parties dealing with his clients and/or employers in connection with the work for which he is responsible.
22. He shall not be financially interested in the bid or bids of contractors, suppliers and other interested parties participating in a competitive work or job on which he has been employed as engineer without full knowledge and consent of his clients or employers.
23. He shall promptly inform his clients or employers of any business in which he has any interest, business connection or affiliation which may compete with or affect the business or the clients or employers.
24. He shall not allow any decision in connection with his work for which he has been employed or on which he may be called upon to perform, to be affected by interest in any business.
25. He will present clearly the consequences to be expected from deviations proposed if his engineering judgment is overruled by non-technical authority in cases where he is responsible for the technical adequacy of engineering work.
26. He shall undertake only those engineering assignments for which he is qualified. He shall engage or advise his employer or client to engage specialists and shall cooperate with them whenever his employer's or clients interest are served best by such an arrangement.

RELATIONS WITH ENGINEERS

27. He shall individually or collectively with others in the profession protect the profession from misunderstanding and/or misrepresentations.
28. He shall not directly or indirectly injure the professional reputation, prospects, advancement and/or practice of other engineers. However, if he has proof or personal knowledge that an engineer has been unethical and/or illegal in his practices, he shall inform in writing the proper authorities for appropriate action.
29. He shall uphold the principle of appropriate and adequate compensation for those engaged in the engineering profession, including those in the subordinate capacities, in the interest of public service and maintenance of the standards of the profession.

30. He shall not try to supplant another engineer in a particular employment after becoming aware that definite steps have been taken toward the other's employment.
31. He shall not compete, by underbidding, through reduction in his normal fees on the basis of charges for work, after having been informed of the charges submitted by another engineer.
32. He shall be fair and tolerant in his dealings with fellow engineers and give credit to those to whom credit is properly due.
33. He shall uphold the honor and dignity of his profession and avoid association in responsibility for work with engineers who do not conform to ethical practices.
34. He will exercise due restraint in criticizing another engineer's work in public, recognizing the fact that the engineering societies and the engineering press provide the proper forum for technical discussion and criticism.

RELATIONS TO THE PROFESSION

35. He shall cooperate in extending the effectiveness of the engineering profession and endeavor to be well-informed of the latest development in the profession by sharing or exchanging information and experience with other engineers, other professionals and students; and by contributing to engineering publications and schools and by participating in the activities of engineering societies.
36. He shall cooperate in upholding the integrity, dignity and honor of the profession by avoiding all conducts and practices that will be discrediting and injurious to the profession.
37. He shall be dignified and modest in explaining or discussing his work and/or merit and shall refrain from self-laudatory advertising or propaganda.

II. STANDARDS AND GUIDELINES FOR THE PRACTICE OF ELECTRONICS ENGINEERS IN THE PHILIPPINES

1.0 INTRODUCTION

- 1.0 Professional practice is the rendition of service by a duly licensed professional by virtue of his technical education, training, experience and competence. It is incumbent that the professional should define the scope of professional service to be rendered and the manner of compensation for his services in a legally executed contract or equivalent legal document.
- 1.1 The practice of Electronics Engineering relates to the development and application of the electronics engineering science and technology in the field of:

- (a) Consultation
- (b) Design
- (c) Construction and Installation
- (d) Inspection, Appraisal and Acceptance
- (e) Operations
- (f) Maintenance
- (g) Research and Development
- (h) Education
- (i) Manufacturing

2.0 SCOPE OF PROFESSIONAL SERVICES

2.1 ENGINEERING CONSULTATION

2.1.1 Definition. Engineering Consultation is the act of giving advice and information to a client in the area of electronics engineering and its related fields in line with current internationally accepted standards and practices. In accordance with R.A. 9292, only registered Professional Electronics Engineers are authorized to render engineering consultation services.

2.1.2 Scope of Work.

- 2.1.2.1 Provide specific advice to clients in the area of electronics engineering and its related fields.
- 2.1.2.2 Represent the client in obtaining from the government or other agencies on the approval of electronics permits, plans, specifications, systems and networks including their installation and operations.
- 2.1.2.3 Serve as technical witness/expert in litigations, technical presentation and negotiations involving electronics and related matters, engineering principles and calculations.
- 2.1.2.4 Provide technical specifications for electronics equipment and systems.

2.2 DESIGN SERVICES

2.2.1 Definition. Design Service is the act of conceptualizing, planning and projecting a scheme, system and facility using the arts and science of electronics along with social, economic, financial and technical considerations.

2.2.2 Engineers Authorized. In accordance with R.A. No. 9292, registered Electronics Engineers are authorized to render design services; however, all electronics plans, drawings, permit applications, specifications, reports and other technical documents emanating from such design works shall be reviewed, signed and sealed only by a Professional Electronics Engineers.

2.2.3 SCOPE OF WORK

- 2.2.3.1 **System Design.** Identifying intelligence to be moved, transmission media; volume and growth; traffic analysis; criteria of acceptability; operating requirements; service quality and reliability vis-à-vis cost; volume growth, new services and future prospect vis-à-vis cost; obsolescence.
- 2.2.3.2 **Survey.** Initial survey of geography and demography of the system; facilities survey – available service facilities and transmission media; communication techniques and equipment, including station site selection.
- 2.2.3.3 **Viability and Financing Studies.** Determining the viability of the electronics projects on the basis of investment vis-à-vis expected economic benefits. Assist client on justification and documentation to lending institutions as may be requested.
- 2.2.3.4 **Preparation of Electronics Plans, Specifications and Design.** Preparation of the project plans, specifications and design in accordance with internationally accepted and locally suited standards and practices and conforming to the Philippine Electronics Code and other pertinent applicable codes, including written specifications; Provided That all such plans, specifications and design work shall be reviewed, signed and sealed by a Professional Electronics Engineer.
- 2.2.3.5 **Cost Estimate and Schedule.** Preparation of cost estimate and schedule which includes materials, labor, overhead and profit.
- 2.2.3.6 **Contract Documents.** Assist in the preparation of bid forms and tender documents and evaluation of the proposals submitted including a review of the documents prior to final award.

2.2.4 Additional Work.

- 2.2.4.1 Inspection/Appraisal
- 2.2.4.2 Construction Coordination and Progress Meetings
- 2.2.4.3 Supervision
- 2.2.4.4 Preparation of As-Built Plans
- 2.2.4.5 Obtaining of regulatory permits from NTC and other concerned regulatory agencies, and electronics building permits from local government units.

2.3 CONSTRUCTION AND/OR INSTALLATION

2.3.1 Definition. Construction and/or installation is the act of putting together parts of a whole in order to build-up; to erect or to form and/or to set or establish electronics equipment, systems or facilities.

2.3.2 Scope

Electronics Engineers may engage in electronics construction and installation as specialty contractors after having been duly licensed by the Contractor's Licensing Board of the government. Under Republic Act No. 9292, registered Electronics Engineers and Professional Electronics Engineers can take charge of or supervise electronics construction and installations.

2.4 INSPECTION, APPRAISAL AND ACCEPTANCE

2.4.1 Definition. The act of investigation (inspection), valuation (appraisal) and certification (plan or equipment acceptance to ensure that it conforms with the accepted standards or recommendations).

Inspection may be defined as critical viewing or investigation or a careful, complete and systematic examination of some electronics items, installation and project in question.

Acceptance may be defined as the act of certifying that a certain equipment, system or network has been properly engineered, installed and made operational according to accepted standards of good engineering practice.

Appraisal means estimating the amounts, quality, conformity to plans or objectives, and worth of an electronics work item.

Inspection, appraisal and acceptance required adequate mastery of theory and planning and extensive experience to electronics planning, engineering construction and installation in addition to a working knowledge of existing applicable codes and laws and the requirements of regulatory agencies and utility companies concerned.

2.4.2 Scope of Work

2.4.2.1 In on-going projects or installation, inspection is generally called for to determine whether materials being used are as specified and workmanship is satisfactory; after which, appraisal of the completed work to determine conformity with the plans and worth of finished part is made.

- 2.4.2.2 Electronics equipment, systems of networks needs acceptance at the factory site before it is delivered to the customer or end-user. This certification or acceptance insures that the equipment, system or network conforms with the technical specifications of the customer.
- 2.4.2.3 In existing or operational installations, inspections are carried out to locate, isolate (defective components or sub-systems) or to recommend modifications, retrofits to improve the systems or network. Appraisal may also be done to evaluate extent of any damage, the corrective steps to be taken, modifications or retrofits needs and the expenses necessary to restore normal operations.
- 2.4.2.4 In practice, inspection, appraisal and acceptance of an electronics equipment, system or network, such as a telecommunication switching exchange may be called for by the owner, customer or client before final payment for the equipment, system or network is made.

2.5 OPERATIONS

- 2.5.1 **Definitions.** Operation is the process of running or managing an electronics system, network, services and peripheral facilities intended for the transmission, reception and delivery of intelligence by wire, radio, fiber optics and any other futuristic media.
- 2.5.2 **Scope of Work.**
 - 2.5.2.1 Operations of any communication systems or networks.
 - 2.5.2.2 Operations of any broadcasting systems or networks.
 - 2.5.2.3 Operations of any computer/microprocessor controlled systems or networks.
 - 2.5.2.4 Operations of any electronic systems or network.

2.6 MAINTENANCE

- 2.6.1 **Definition.** Maintenance is the proper upkeep of electronics systems and equipment so as to attain maximum safety and meet the desired grade of service.
 - 2.6.2.1 Analysis of electronics equipment and systems to determine maintenance requirements and priorities.
 - 2.6.2.2 Supervision of service maintenance work which includes :
 - 2.6.2.2.1 Preventive maintenance including periodic testing.

2.6.2.2.2 Corrective maintenance involving repair and/or replacement of defective component, equipment and accessories.

2.6.2.2.3 Planning and developing preventive maintenance programs.

2.6.2.2.4 Analyzing inspection and test reports for prescription of proper corrective measures.

2.6.2.2.5 Training of maintenance personnel.

2.6.2.2.6 Determining spare parts, test and measuring equipment and tool requirements.

2.6.2.2.7 Promulgating and enforcing safety rules and practices.

2.7 RESEARCH AND DEVELOPMENT

2.7.1 Definition. The practice of research and development consist of specialized investigation and evaluation of operational and/or laboratory data leading to or resulting in the design/manufacture/production or development or control/ measurement of new or improved electronics systems, equipment and/or electronics components devices, techniques and procedures.

2.7.2 Scope of Work

Research and Development may cover the following areas:

2.7.2.1 Formulation and development of new electronics products or systems from its conceptualization to utilization and commercialization

2.7.2.2 Improvement of electronics products or systems to improve reliability, usability and cost effectiveness.

2.7.2.3 Systems analyses, coordination and evaluation of quality control programs in business and industrial establishments.

2.7.2.4 Research and development of new effective and efficient systems and/or techniques of information transmission and reception, robotics, computerized or computer-aided work automation and manufacturing.

2.7.2.5 Research and development in the effective and efficient application of electronics in education and information dissemination.

2.8 EDUCATIONAL SERVICES

2.81 General. Educational services would refer to the services rendered in the form of one-the-job training, seminars or to full-time or part-time teaching in-training institution relating to electronics engineering.

2.82 Scope of Services.

2.8.2.1 Teaching of electronics course/subjects in engineering schools, colleges and review centers on full-time or part-time basis.

2.8.2.2 Lecturing in electronics engineering subjects or seminars.

2.8.2.3 Teaching tutorial/refresher courses on basic electronics engineering concepts and related subjects.

2.8.2.4 Serving as resource speaker in technical sessions.

2.8.2.5 Writing articles, pamphlets or books for the dissemination of technological and scientific knowledge.

2.9 MANUFACTURING

2.9.1 Definition. Manufacturing is the process of producing, forming or fabricating electronic equipment and/or related components, parts, devices and accessories.

2.9.2 Scope of Work

2.9.2.1 Management and supervision of the production or fabrication of electronic equipment and/or related components, parts, devices and accessories.

2.9.2.2 Research leading to our resulting in the design or manufacture of new or improved electronic equipment, components, devices, techniques and procedures.

2.9.2.3 Testing and quality control of electronic products.

3.0 COMPENSATION

3.1. INTRODUCTION

Different types of professional services that are within the scope of electronics engineering practice necessitate different methods of compensation. Some methods are as follows:

3.1.1 Percentage of Construction Cost

- 3.1.2 Unit Cost Basis
- 3.1.3 Cost Plus Reasonable Profit
- 3.1.4 Fixed Salary Basis
- 3.1.5 Professional Fee Plus Expenses
- 3.1.6 Cost Per Hour Basis
- 3.1.7 Task Rate Basis

The standards on minimum compensation are based on current practice and on Current Consumer Price Index and Minimum Basic Daily Wage. Adjustments in the rates will be made in accordance with an Escalation Formula to be defined.

3.2 ENGINEERING CONSULTATION

- 3.2.1 **General.** The rate of compensation of an electronics engineer will be commensurate with his experience and expertise and with the importance and value of the activity covered. In addition to the following recommended rates, the client will pay for the cost of at least “business class” transportation and accommodation if the meetings/hearings are conducted in a place more than 50 kilometers away from the established office of the Consultant.
- 3.2.2 **Conference and Court Appearance.** For services rendered by the electronics engineer relating to rendering opinion or give advice; clarification or explanation on technical matters pertaining to electronics engineering and associated matters; or to appear as an expert witness in Court arbitration hearings, the recommended minimum fee chargeable to the client will not be less than P500.00 per hour but not less than P1,000.00 per attendance or appearance irrespective of whether the schedules meeting or hearing is postponed or not.
- 3.2.3 **Project Consultation.** For professional services rendered by the electronics engineer as to serve as consultant in any category for a project which has a definite duration, the minimum recommended hourly rate will not be less than one hundredth (0.01) of the basic monthly salary scale for salaried ECE practitioners.
- 3.2.4 **Routine Consultation (Retainer).** The rate of retainers’ fee to be charged by the consulting electronics engineer for routine or ordinary consultation will not be less than P1,500.00 a month. However, if the consultant’s presence is required in another place away from his established office, he will be additionally compensated at a rate of P100.00 for every hour that he is away from his office, and if the place is more than 50 kilometers away from his established office, the client will be required to provide the consultant with at least “business class” traveling and living expenses.

- 3.2.5 **Special Consultation.** The professional fee for special consultation services as may be required by clients will be determined by the engineer to his experience and expertise and the amount of manhours that will be required. The professional fee in some cases is fixed by agreement plus expenses or is based on a certain percentage of the value of the project.

3.3 DESIGN SERVICES

- 3.3.1 **General.** The project owner or his representative inquires at the start of the project how much would be the designer's fee. Basically, the compensation should permit the designer to cover all costs and net him a reasonable profit. Among the methods of determining the fee which can be fair and reasonable are :

- a. Percent of Total Project Cost Method
- b. Percent of Cost Method
- c. Unit Cost Method
- d. Cost Plus Reasonable Profit

- 3.3.2 **Percent of Total Project Cost Method.** The number of electronics systems and equipment that are required for a project determines the complexity of the design. These electronics systems and equipment are the following but not limited to:

- a. Wired or wireless telecommunications systems, including central office switching equipment, remote switching units, concentrators, PABX/PBX's, cordless telephone systems, intercom, video conferencing, terrestrial, submarine and satellite links, microwave, fiber optics, cellular, trunked radio, paging, telemetering and other wired or wireless electronic equipment for voice, data, text and facsimile communications;
- b. Broadcasting system, including radio and TV broadcast equipment for commercial and training purposes, transmitters of any power rating, studio and control room equipment, antenna towers, etc.;
- c. Cable or wireless television systems, including headend and distribution equipment, Master Antenna TV (MATV) systems, TVRO and VSAT receivers;
- d. Information Technology (IT) systems including computers, servers, routers, modems, and associated equipment for local, campus, metropolitan and wide-area networking, data acquisition/telemetering and Intranet/Extranet/Internet access;

- e. Security and alarm systems, including closed circuit television (CCTV), entry/access control, watchman systems, burglar alarms, intruder detection systems, lighting controls, monitoring/surveillance systems, sensors, detectors, parking management systems including barrier controls, signal lights, ticketing machines, etc.;
- f. Electronic fire alarm systems, including early-detection system, control panels, smoke detectors, fire suppression system controls, etc.;
- g. Sound-reinforcement systems, background music, paging, conference systems, public address systems and simultaneous interpretation systems for auditoriums, stadia, theaters and the like;
- h. Navigational aids and controls, including radars, LORAN, TACAN, VOR's, control tower equipment, lighthouses and the like;
- i. Indoor and outdoor signages, including electronic billboards/displays, centralized clock systems, indicators and the like, whether operating independently or networked/controlled from a centralized or more than one point;
- j. Electronically-controlled conveyance systems, including elevators, escalators, cable cars, carlifts, personal lifts, horizontal and vertical conveyors, dumb waiters and similar devices;
- k. Electronic/computerized process controls and automation systems for factories, plants and assembly lines, including robotics, electronic transducers, fixed (non-portable) test equipment and apparatus for measurement, instrumentation and controls, including those for manufacturing processes, laboratories and workshops;
- l. Building automation, management and control systems incorporating all or any combination of the above systems;
- m. Building wirings utilizing copper cables, fiber-optic cables or other media, including structured cabling, for telephone, inter-communications, data communications, computer, cable TV, master antenna TV, closed-circuit TV, electronic fire alarms, burglar/security system, building automation and controls, energy management, electronic billboards/signages or other electronic systems;
- n. Any other electronic and IT systems, equipment, apparatus, device and/or component that may be developed in the future and installed in buildings and structures where safety to the users, operating personnel and the general public is a concern.

The more complex the design is, the higher will be the percentage. The complexity is thus categorized into three (3) groups, as follows:

Group I – The project with more than five (5) of the above listed systems, combined in one whole project, the minimum basic design fee is one percent (1%) of the total project cost.

Group II – For project with three to five (3 to 5) of the above listed systems included in one whole project, the minimum basic design fee is 1.5% of the total project cost. However in no case shall the design fee be less than P6,000.00.

Group III – For projects with one or two (1 or 2) of the above listed systems in one whole project, the minimum basic design fee is 2% of the total project cost. However, in no case shall the basic design fee be less than P3,000.00.

- 3.3.3 **Percent of Cost Method.** This Method is similar to the Percent of Total Project Cost Method except that the percentage is not based on total project cost but rather on the cost of the complete electronics installation.

As in the previous method, the basic design fee is based on the complexity of the requirements which is categorized into three (3) groups, as follows: (Groupings are same as one above).

Group I – Minimum basic design fee is 10% of cost of complete electronics installation. In no case will the basic design fee be less than P10,000.00.

Group II – Minimum design fee is 8% of cost of complete electronics installation. In no case will the basic design fee be less than P6,000.00.

Group III – Minimum design fee is 6% of cost complete electronics installation. In no case will the basic design fee be less than P3,000.00.

- 3.3.4 **Unit Cost Method.** In cases when a project involves alterations, repairs, additions, modifications, etc., which do not involve a whole project, the Unit Cost Method is very convenient. The design fee is based on the unit number of electronics facilities that are included in the design such as: number of terminal equipment, subscriber station equipment, etc.

In this method, the electronics facilities are divided into classifications which have corresponding unit design rates.

For unit facilities/loads/equipment: a fee of P100.00 per outlet for each, but not limited to the systems listed under Sec. 3.2.2.

For partial facilities of a whole system, a minimum fee of P1,000.00 for each but not limited to the following:

1. Detached or Separate power supplies of systems listed under Sec. 3.2.2
 2. Controls or auxiliary devices or facilities of the systems listed under Sec. 3.2.2.
- 3.3.5 **Cost Plus Reasonable Profit.** For electronics design jobs which are relatively complicated and require a lot of time and effort, a method of compensation which is considered fair to both designer and client is the “Cost Plus Reasonable Profit” method. The amount or the percentage of profit is to be agreed upon between the designer and client prior to the signing of the contract. However, the percentage will not be less than 25% of the profit cost.
- 3.3.6 **Per Diem of Traveling Expenses.** A per diem of not less than P1,000.00 plus traveling and living expenses will be chargeable to the owner or any occasion where the electronics designer will be required to perform services in a locality beyond a radius of fifty (50) kilometers from his established office.
- 3.3.7 **Extra Sets of Contract Documents.** The electronics designer will furnish five (5) sets of drawing specifications and other contract documents. The cost of reproduction of extra sets of contract documents, when required by the owner of his representative is to be charged to and paid for by the owner.
- 3.3.8 **Government Taxes on Services.** The electronics designer’s minimum basic fee is net to the engineer. Any tax that the government may impose to the engineer or as a consequence of the services performed for the project (exclusive of income tax) will be paid by the owner.
- 3.3.9 **Salaries Professional.** An electronics engineer employed as salaried designer in a firm will be compensated in accordance with Table 3.1.

TABLE NO. 3.1

Basic Monthly Salary Scale for Salaried ECE Practitioners

YEARS OF ACTIVE SERVICE

<u>Up to 5 Years</u>	<u>5 – 10 Years</u>	<u>10 and Above</u>
P2,000 - P5,000	P5,000 – P8,000	P8,000 – Up

The above basic monthly salary scale will remain applicable until such time the economic conditions will no longer be the same at the time this manual of practice was published. Notwithstanding the preceding paragraph, the above basic monthly salary scale is without prejudice to the level of competence, learning skill and expertise of salaried ECE practitioner in determining a fair and reasonable

compensation therefrom. In order to up-grade these salary scales to suite any change in economic conditions, the following escalation formula may be applied.

$$R_u = R_m [1/2 (W_c/W_m + P_c/P_m)]$$

- Where:
- R_u = The upgraded minimum service rate or monthly salary at the time of offer.
- R_m = The minimum service rate or monthly salary as established in this edition of the Manual of Practice.
- W_c = Current minimum basic daily rate at the time of the computation.
- W_m = Minimum basic rate at the time this Manual of Practice was published which was P_____
- P_c = Current Consumer Price Index at the time the offer is made.
- P_m = Consumer price index at the time this Manual of Practice was published which was _____.

3.3.10 Payment Schedule.

<u>% Payment</u>	<u>Payable Upon</u>
50%	signing of the contract
45%	submission of five (5) sets of the final drawings and upon submission of five (5) copies of the written specifications (if separately written specifications are necessary in addition to that already shown on the plans).
5%	submission of written estimate.

3.4 CONSTRUCTION AND INSTALLATION

3.4.1 **Contractor.** An electronics contractor can determine his own compensation through reasonable mark up on net costs of the project or activity.

- 3.4.2 **Salaried Employees.** The remuneration for electronics engineers employed in electronics construction or installation will be guided by the schedule of fees in Table 3.1.

3.5 INSPECTION AND APPRAISAL

- 3.5.1 **General.** Inspection/Appraisal as a form of necessary service is carried out largely by government entities, insurance, adjustment firms and commercial banks.
- 3.5.2 **Salaried Professional.** Compensation for a professional as an employee of these agencies will be in accordance with the Basic Monthly Salary Scale for Salaried ECE Practitioners shown in Table 3.1.
- 3.5.3 **Task Rate Work.** For piece work or task rate work, the engineer will be paid not less than a minimum of one thousand (P1,000.00) per day or fractions thereof plus at least “business class” traveling and living expenses if the site of the project is more than fifty (5) kilometers away from the engineer’s established office.

3.6 OPERATIONS

- 3.6.1 **Salaried Employee.** The employment of electronics engineers in the operation of electronics systems, services will be guided by the schedule shown in Table 3.1, Basic Monthly Salary Scale for ECE Practitioners.

3.7 MAINTENANCE

- 3.7.1 **Contract Basis.** Electronics maintenance service may be undertaken on contract or fixed fee basis. The fee or rate of compensation will be based upon the degree of experience of work as defined in the contract.
- 3.7.2 **Salaried Employee.** Electronics engineers employed in maintenance work will receive not less than the prescribed minimum compensation as shown in Table 3.1, Basic Monthly Salary Scale for ECE Practitioners.

3.8 RESEARCH AND DEVELOPMENT

- 3.8.1 **General.** Research and development are usually undertaken by large firms or conglomerates which have sufficient funds for the purpose.
- 3.8.2 **Salaried Employee.** The electronics engineer in this field renders service as an employee, research and development manager, researcher or programmer/scheduler. In such instances, the minimum remuneration will be in accordance with the Basic Monthly Salary for ECE Practitioners.

- 3.8.3 **Task Rate Work.** Research and development work may also be carried out on a scale by individual electronics engineers on piece work or task rate system under contract or fixed fee basis. The engineers will be guided by his experience, expertise and the monetary value of the project in the determination of the fixed fee.

3.9 EDUCATIONAL SERVICES

- 3.9.1 **Full Time Basis.** As the professional whose services fall under 2.8.2.1 are considered salaried electronics practitioners, their basic monthly rates are covered by Table 3.1.
- 3.9.2 **Part Time Basis.** For those on a part-time basis or those who are paid on the hourly basis (2.8.2.1), the minimum basic rate per hour will be those of Table 3.1 divided by fifty (50).
- 3.9.3 **Lecturers.** For those who render service for 2.8.2.2 and 2.8.2.3 their minimum basic hourly rate will be those of Table 3.1 divided by twenty-five (25).
- 3.9.4 **Tutorial.** For those who render service for 2.8.2.4 and 2.8.2.5 the compensation will be determined on a case-to-case basis depending upon the time of preparation needed.

3.10 MANUFACTURING

- 3.10.1 **Salaried Employee.** Compensation of electronics engineers in the manufacture of electronics components, devices and accessories, will be guided by the schedule shown in Table 3.1, Basic Monthly Salary Scale for ECE Practitioners.
- 3.10.2 **Consultancy.** Compensation under this category may be referred to the options in Section 3.2, Engineering Consultation.