

# Electrical Engineering Code of Practices



## Comments sheet for the draft Electrical Engineering Code of Practice

1	2	3	4	5	6
Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
Comment	1	Definitions	Add definition: “means a Professional Certificated Engineering registered in terms of 18. (1) (a)(i) of the Act who has a Certificate of Competency as an Electrical Engineer issued by the Chief Inspector and experience specifically in the sub discipline of Electrical Engineering	The CE is mentioned in the def of Category of registration and thus need to also be defined	Agreed, definition added.
Comment	2	1.1.1 The code:	It must be acknowledged that all electrical engineering work involves risk due to nature of the product (electricity) and the impact of its incorrect control.	Not all product of electrical engineering is electricity, rephrase to be relevant to all sub disciplines of electrical.	Agreed, amendment made
Comment	3	1.2.2 Purpose of the Code (a), (b), c and d	The purpose of the Electrical Engineering Code of Practice should be to provide detail guidance on how to comply with either “Identification of Engineering Work (IDoE) Regulations or Overarching Code of Practice for Performance of the Engineering work” per sub- Electrical discipline.	Code of Practice are developed to complements laws and regulations to provide detailed practical guidance on how to comply with legal obligations or regulations. Alternatively, they may be	Agreed to amend accordingly

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				developed to outline effective ways to identify and manage related risks.	
Comment	4	1.2.2 (b)	Remove it	Establishment of the level of the competency is defined in the identification of Engineering work regulation	Comment considered
Comment	5	1.2.2 (c)	Clarification on the entire sentence "To make provision for what?"		Comment considered
Comment	6	1.1.3 This Code does not regulate those activities conducted by engineering practitioners under the Pr Cert Eng registration category.	What regulates and identifies engineering work done by those this category?		Comment considered and consistency important in writing the Code
Comment	7	1.1.3	<i>"This Code does not regulate those activities conducted by engineering practitioners under the Pr Cert Eng registration category."</i>	Please elaborate as to the reasoning behind this statement in 1.1.3 and if this implies that Pr.Cert Engineers are limited in any way through their exclusion in this code of conduct.	Agreed, Professional Certificated Engineer included

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				<p>I ask this as I don't see Pr. Cert Engineers mentioned again in the document, or in the career path displayed in figure 1, section 3.3.</p> <p>Perhaps the exclusion is intended for legal appointment purposes in terms of the OHSAct, but my concern is that there may be another connotation, which would concern me greatly.</p>	
Comment	8	1.3 Legal Framework	<p>This code must be read in conjunction with:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The Identification of Engineering Work (IDoE) Regulation,</li> <li><input type="checkbox"/> Overarching Code of Practice for Performance of the Engineering work and</li> <li><input type="checkbox"/> Code of Conduct for Registered Persons: Engineering Profession Act, 2000 (Act No.46 of 2000)</li> </ul>	<p>Electrical Engineering Code of Practice must be aligned to the legal document that requires compliance with and these are documents that registered people must abide by when performing the engineering work.</p>	<p>Agreed, list of other applicable Codes to be added</p>
Comment	9	1.1. 3	<p>Remove this statement from this document</p>	<p>This code is applicable to</p>	<p>Already covered above</p>

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				Professional Engineers, Technologist and Technicians. IDoE have separate requirements for Professional Certificated Engineers.	
Comment	10	2.1	Include Intelligent Transportation System (ITS)	ITS is an advanced application which aims to provide innovative services relating to different modes of transport and traffic management and enable users to be better informed and make safer, more coordinated, and smarter use of transport networks.	Agreed, amended accordingly
Comment	11	2.1 Identification and Classification of Electrical Engineering Work	Recommend that this be revised and be more comprehensive and accurate	Building automation does not fall under IoT only, the IoT term is incorrectly used. This then limits expertise for projects. In addition, a list of other works have not been considered. Consider EPC, auditing, M&V and others  In terms of risk, some might define lighting as low risk. It is actually moderate to high risk and a	Agreed, amendment accordingly

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				competent person is required for these works.	
Comment	12	2.1 Identification and Classification of Electrical Engineering Work Telecommunications Engineering	Computer and Software Engineering details should be covered properly in the document.		Comment noted, Computer and Software Engineering to be covered under its own Code
Comment	13	2.1 Identification and Classification of Electrical Engineering Work	A separate CoP covering Computer & Software Engineering may be more appropriate.	Some of these do not fit in with the power and telecomms bias from Section 3.4 onwards, so it's not clear what the purpose of mentioning these is.	Comment noted, Computer and Software Engineering to be covered under its own Code
Comment	14	2.1 Identification and Classification of Electrical Engineering Work	Engineering work can be identified from the gazetted, Identification of engineering work regulations. In addition, there has been new additions under the current electrical engineering specializations due to the advent of new challenges in the electrical engineering field, these.	Remove comma, change capital I to l, has – have, challenges - technologies	Comment noted, amended
Comment	15	2.1 Identification and Classification of	This is insufficient for Telecommunications	Additional like Wireless communication. Fibre optics communication	Comment noted, amended

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		Electrical Engineering Work Telecommunications Engineering		visible light communication.	
Comment	16	See highlights on the document submitted back	Various grammar issues picked up and highlighted on the document 2.1	Various grammar issues picked up and highlighted on the document	Comment noted, edited document to be used
Comment	17	3.1 Work Within Area of Competency	Recommend numbering the competence levels listed in table 2, to tie in with table A1	Competence levels in table A1 are given in numeric grading which does not tie in with Table 2 which only lists the competence.	Comment noted, amendment made
Comment	18	3.4 Competencies required for identified critical electrical engineering systems	These seems biased toward heavy current and not other subsystems of electrical	These seems biased toward heavy current and not other subsystems of electrical. Please ensure that the team working on this review cuts across all sub disciplines of electrical	Comment noted, section reviewed
Comment	19	3.4 Competencies required for critical engineering systems	Consider removing it of rephrase	Definition of critical engineering systems in the IDoE and /or ECSA policy and Standard and Overarching Code of Practice for Performance of the Engineering work	Comment noted, section reviewed

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
Comment	20	Apply to 3.5 Misrepresentation of Competence and  4. ELECTRICAL ENGINEERING GOOD PRACTICE	Recommend elaborating on the risk associated with accepting the responsibility of the design.  Recommend mentioning and address the consequences.  Matter around copyright infringement and legalities should be addressed.  Recommend mentioning that design review protocol should be implemented (similar to sub-clause 4.3.1) when works not done by competence person for respective competence level. Indicate risk and liability of accepting works not done by less competent persons.	I am aware that it seems acceptable within the industry for consultants to accept design models, simulations, design drawings, specifications from manufacturers / suppliers or other non-engineering professions and submit these deliverables as their own works to Clients. Where consultants are competent and review these works prior to accepting could be deemed acceptable in accordance with sub-clause 4.1, although the risk is that the design was not performed by the consultant. In addition, there are consultants that are not competent and accept the works to be correct regardless – this is a concern and major risk to public safety etc.	Comment considered
Comment	21	4.2.1 Design calculations and simulations	Shows bias toward power engineering. What about electronic, and Computer Engineering/ Systems? More on Telecommunications should be done.		To be removed
Comment	22	4.2.4 Design documentation	Data shall be stored electronically in a recognised international format.	Statement too broad to be of any practical use.	Comment noted

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
			Delete highlighted		
Comment	23	4.4 Obligations to Society	Recommend including the action to be taken if an engineer identifies fault in a product / installation / works etc that is not their own, though poses risk to the general public / working environment.	There should be a sense of obligation towards public safety, thus, for example, if one identifies a poor unsafe electrical installation, the competent person should inform the respective persons of the non-compliance and risk to safety. But the contradiction here is to inform the responsible engineer (if there was one) prior to informing the client directly - Rules of Conduct for Registered Persons: Engineering Profession Act, 2000 (Act No. 46 of 2000), Sub-Clause Dignity of the Profession, 3(5) Registered Persons: -	Agreed, amendment to be made
Comment	24	4.2.4 Design documentation	fault level withstand and that the design is fit for the intended purpose approval and preservation	Revision of statement required	Agreed, revision to be made
Comment	25	4.4 Obligations to Society	Replace with Ethics of Engineering	This broad and vague subtitle looses the force of the issues addressed.	Agreed
Comment	26	5.1. Interpretation	The word "they" in its singular form	In its plural form	Agreed , amendment to be made
Comment	27		Dear team,		Already addressed above



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			<p>Annexure A Table A1 refers to Table 2 and competence levels of 2   3   4.</p> <p>However, Table 2 within the document only contains levels 1 and 2.</p> <p>Either Table A1 or Table 2 is incorrect?</p>		
Comment	28		 <p>2 EE Code of Practice Final Draft (30-9-2021)</p>		
Comment	29	Table A.1 Note 2: Registered Technicians may not assume responsibility in category 2 as a whole	<p>What criteria is this decision based on?</p> <p><input type="checkbox"/> Change Table A.1 to Annexure A</p>	We are contravening the IDoE regulation.	Agreed, to be updated accordingly
Comment	30	Comments: Use of Registered persons and Engineering	Use Registered Persons	It is aligned to Engineering Profession Act and IDoE	Agreed, to be amended accordingly

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		practitioner, Engineer is used interchangeably. There is no uniform way of exper			
Comment	31		 Adobe Acrobat Document		
Comment	31.1			correct bookmarks	Resolved
Comment	31.2	Section 18 (2) prohibits persons so registered from practicing in a category other than that in which they are registered	Section 18 (2) prohibits registered persons from practicing in a category other than that in which they are registered.	Grammar	Agreed, amended accordingly
Comment	31.3	It must be acknowledged that all electrical engineering work involves risk due to nature of the product (electricity) and the impact of its incorrect control.		not all electrical work's product is electricity	Agreed, statement revised

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	31.4	1.1.3 This Code does not regulate those activities conducted by engineering practitioners under the Pr Cert Eng registration category.		Pr Cert Eng should be included in the ECoP	Agreed, amended accordingly
Comment	31.5	gazetted, Identification of engineering work regulations. In addition, there has been new additions under the current electrical engineering specializations due to the advent of new challenges	gazetted identification of work...there have been new additions...to the advent of new technologies	Grammar	Agreed, amended accordingly
Comment	31.6	Computer and Software Engineering o Big data engineer (e.g. Machine Learning, Data		Some of these do not fit in with the power and telecomms bias from Section 3.4 onwards, so it's not clear what the purpose of mentioning these is. A separate CoP covering Computer & Software	Additional telecomms examples provided. Computer and Software Engineering removed from the ECoP

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		analytics, data security and privacy, etc)		Engineering may be more appropriate.	
Comment	31.7	o Biometrics Engineer		It looks like telecoms has evolved quite a lot and there is an overlap between the two disciplines	Comment considered
Comment	31.8	o Solution architect engineer o Internet of things engineer (e.g. Building automation, smart metering, power distribution systems) o Autonomous driving engineer o 3D printing engineer (e.g. additive manufacturing, etc) o Cyber and physical systems engineer • Telecommunications Engineering o Cyber security		This is insufficient for Telecommunications Additional like wireless communication. Fibre optics communication visible light communication.	Comment considered
Comment	31.9	Table 1:	Theoretical and experimental...	Grammar	Agreed, amended accordingly

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
		Theoretical experimental investigation			
Comment	31.10	Table 1:  related to electronics engineering;			Item reviewed and updated
Comment	31.11	Preparation of tender and / or working drawings; • Provision of information for the design of services • Preparation of specifications and schedule of quantities	<ul style="list-style-type: none"> <li>Preparation of specifications and schedule of quantities and / or working drawings;</li> <li>Provision of information for the design of services</li> </ul>	Consolidate bullet points	Agreed, amended accordingly
Comment	31.12	networksand	networks and	Punctuation	Agreed, amended accordingly
Comment	31.13	<ul style="list-style-type: none"> <li>planning and designing</li> </ul>	<ul style="list-style-type: none"> <li>planning and designing of communications networks</li> </ul>	grammar	Agreed, amended accordingly

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
		communications networks			
Comment	31.14	2.2 Risk Response	Space between Table 1 and 2.2 header	Punctuation	Agreed, amended accordingly
Comment	31.15	Solutions shall include a Plan A and a Plan B	Solutions shall include alternative plans		Agreed, amended accordingly
Comment	31.16	2.2 Risk Response	Add financial risk		Agreed, amended accordingly
Comment	31.17	Project Engineers must install, test and commission the necessary equipment or system for the desired result with compliance to	Project Engineers must install, test and commission the necessary equipment or system for the specified result with compliance to	Clarity	Agreed, amended accordingly
Comment	31.18	This process must include all actions taken during construction (quality).	This process must include all actions taken during construction as part of the quality management process	Clarity	Agreed, amended accordingly
Comment	31.19	It is accepted that due to the varying nature of an electrical engineering service,	It is accepted that due to the varying nature of an electrical engineering service, rigid boundaries are not applicable appropriate	Clarity	Agreed, amended accordingly

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
		rigid boundaries are not applicable,			
Comment	31.20	The following electrical engineering systems are designated as critical electrical engineering systems, thus, those that may have high risk and high consequences on public, health and environment.	The following electrical engineering systems are designated as critical electrical engineering systems, thus, those that may have high risk and high consequences on public the economy, health and environment.	Clarity	Agreed, amended accordingly
Comment	31.21	The selected solution shall clearly demonstrate meeting of client requirements in a safe, effective...	The selected solution shall clearly demonstrate meeting of client requirements in an effective	Clarity	Agreed, amended accordingly
Comment	31.22	<ul style="list-style-type: none"> <li>• Develop and Prototype solution</li> <li>• Test and Evaluate Solution</li> <li>• Communicate Results (and redesign if needed)</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and prototype solution</li> <li>• Test and evaluate solution</li> <li>• Communicate results</li> </ul>	Punctuation	Agreed, amended accordingly

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
Comment	31.23	A typical final design package when the correct design process is followed shall include design calculations (including simulations), drawings, test procedures	A typical final design package when the correct design process is followed shall include design calculations (including simulations), schedule of quantities, drawings, test procedures	Clarity	Agreed, amended accordingly
Comment	31.24	For manual analysis, all analysis calculations shall be shown together with the results of the analysis, e.g. node voltage, load current or fault level.		4.2.1 Shows bias toward power engineering. What about electronic systems?	Agreed, telecoms parameters added.
Comment	31.25			More on Telecommunications should be done..	Covered above
Comment	31.26	Summary of computer output analysis results, node voltage, load current or fault level	<ul style="list-style-type: none"> <li>Summary of all computer input, e.g. load cases and load combinations considered; and</li> </ul>	Clarity	Agreed, amended accordingly
Comment	31.27	All symbols and units used shall be consistent with the symbols used in the	<ul style="list-style-type: none"> <li>All units used shall be consistent with the units used in the particular code of practice or standard being used</li> </ul>	Clarity	Agreed, amended accordingly



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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
		particular code of practice or standard being used.			
Comment	31.28	General information or data to be indicated includes:	<ul style="list-style-type: none"> <li>All symbols shall, where applicable, be consistent with the particular code of practice or standard.</li> </ul>	Addition	Agreed, amended accordingly
Comment	31.29	Any tests required for electrical systems design purposes (including Prototype, Functional Tests or FAT where required)	Any tests required for electrical systems design purposes (including Prototype, Functional Tests or Factory Acceptance Tests (FAT))	Clarity	Agreed, amended accordingly
Comment	31.30	Approval of designs means that the design is complete and complies with the required standards, specifications and legislation in terms of safe operation, loading adequacy, fault level withstand and that the design is fit for the intended purpose.		Clarity	Agreed, statement revised

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
Comment	31.31	Data shall be stored electronically in a recognised international format.		Statement too broad to be of any practical use.	Agreed, statement revised
Comment	31.32	This quality control is not limited to the actual site only, but also needs to include any manufacture/ pre-assembly and assembly work completed.	This quality control is not limited to the actual site only, but include any manufacture/ pre-assembly and assembly work completed	Grammar	Agreed, amended accordingly
Comment	31.33	It is recommended that a quality control plan (QCP) be instituted by the contractor and approved by the designer,	Where appropriate, it is recommended that a quality control plan (QCP) be instituted by the contractor and approved by the designer,	Clarity	Agreed, amended accordingly
Comment	31.34	...but also to the requirements of the codes and or relevant specifications that the contractor is expected to satisfy.	...but also to the requirements of the codes and/or relevant specifications that the contractor is expected to satisfy.	Clarity	Agreed, amended accordingly

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
Comment	31.35	The steps shall be signed off by the contractor as having been correctly completed and overviewed by the engineer for important issues. Should the designer not be satisfied with the arrangements regarding quality control instituted	The steps shall be signed off by the contractor as having been correctly completed and overviewed by the engineer for important issues. Should the designer not be satisfied with the arrangements regarding quality control instituted	Punctuation	Agreed, amended accordingly
Comment	31.36	4.4 Obligations to Society	4.4 Ethics of Engineering	This broad and vague subtitle loses the force of the issues addressed.	Agreed, amended accordingly
Comment	31.37	Any electrical engineering work carried out shall adhere to the following:	Any electrical engineering work carried out shall take into account the following:	Clarity	Agreed, amended accordingly
Comment	31.38	Honesty(Truth and objectivity), integrity and fairness without discrimination	Honesty (truth and objectivity), integrity and fairness without discrimination	Grammar and punctuation	Agreed, amended accordingly

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Name	Comment No	Clause, sub-clause or Annex	Proposed Change	Justification for change	Working Group response
Comment	31.39	The word "they" in its singular form, or its derivative forms "their/them" are pronouns used for gender neutrality.	The word "they" in its plural form, or its derivative forms "their/them" are pronouns used for gender neutrality.	Grammar	Agreed, amended accordingly
Comment	31.40	The Council shall take all reasonable steps to introduce the Code of Practice to the general public.	The Council shall take all reasonable steps to make available the Code of Practice to the general public.	Clarity	Agreed, amended accordingly
Comment	32		 Adobe Acrobat Document		Comments noted, amendments made