



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

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RUBRICS FOR PROGRAMME OUTCOMES

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Mathematical and Scientific Terms	Demonstrates a skilful ability to interpret mathematical and Scientific terms correctly	Demonstrates an ability to interpret most mathematical and scientific terms correctly.	Demonstrates some ability to interpret Mathematical and scientific terms Correctly.	Demonstrates minimum ability to interpret Mathematical and Scientific terms Correctly.
Theory in Engineering Problems	Demonstrates a comprehensive Understanding of underlying theory and application to the problem.	Demonstrates an ability to Understand the application of theory to the problem.	Demonstrates some ability to Understand the application of theory to the problem	Demonstrates minimal ability to Understand the application of theory to the problem
Mathematical Models	Chooses an optimal mathematical model that applies to an engineering problem, and develops new models.	Chooses a mathematical model that applies to an engineering problem, and has some success in model development.	Chooses a mathematical model that applies to an engineering problem, but requires assistance in model development.	Demonstrates minimal Understanding of the connection between mathematical models and engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Identify/Define and Contextualize Problem	Demonstrates a skilful ability to identify/articulate a problem that is strongly supported and clearly linked to the issues at hand and demonstrates a comprehensive and insightful understanding	Demonstrates an ability to identify/articulate a problem that is clearly linked to the issues at hand.	Demonstrates some ability to identify / articulate a problem that is partially connected to the issues at hand.	Demonstrates minimal ability to identify/articulate a problem.
Formulate Strategies for Solving a Problem	Demonstrates a skilful ability to identify multiple strategies for generating approaches to solve a problem, and has insight into the pros	Demonstrates an ability to identify an appropriate strategy for generating approaches for	Demonstrates some ability to identify a strategy for generating an approach for solving the	Demonstrates minimal ability to identify a strategy for generating an approach for solving a problem.

	and cons of those strategies	solving a problem.	problem.Strategy may or may not be appropriate	
Analyze, Evaluate and Select Solutions	Demonstrates a skilful ability to analysis, evaluate and select optimal/practical solution, thorough and insightful explanation of feasibility and impact.	Demonstrates an ability to analyze, evaluate and select optimal/practical solution. Clear explanation of feasibility and impact.	Demonstrates some ability to analyze, evaluate and select optimal/practical solution. Partial explanation of feasibility and impact.	Demonstrates minimal ability to analyze, evaluate or select optimal/practical solution. No explanation of feasibility and impact.

PO 3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Understanding the Design Process	Demonstrates a comprehensive ability to understand and explain a design process.	Demonstrates an ability to understand and explain a design process.	Demonstrates some ability to understand and explain a design process.	Demonstrates minimal ability to understand and explain a design process.
Problem Solving	Considers multiple approaches to solving a problem, and develops a logical, consistent plan. Recognizes consequences of solution and can articulate reason for choosing solution.	Considers multiple approaches to solving a problem, which is justified and considers consequences.	Considers a few approaches to solving a problem; doesn't always consider consequences	Considers a single approach to solving a problem. Does not consider consequences
Implementing Design Strategy	Demonstrates a skilful (thorough/insightful/creative) ability to execute a solution taking into consideration all design requirements and pertinent contextual elements.	Demonstrates an ability to execute a solution taking into consideration design requirements and some contextual elements.	Demonstrates some ability to execute a solution that attends to the problem, but omits some design requirements and/or pertinent contextual elements	Demonstrates minimal ability to execute a solution. Solution does not directly attend to the problem.
Evaluating Final Design	Demonstrates a skillful (thorough/insightful) ability to evaluate/confirm the functioning of the final design, with deliberation for further improvement.	Demonstrates an ability to evaluate/confirm the functioning of the final design.The evaluation iscomplete and has sufficient depth.	Demonstrates some ability to evaluate/confirm the functioning of the final design, but the evaluation lacks depth and/or is incomplete.	Demonstrates minimal or no ability to evaluate/confirm the functioning of the final design.

PO 4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Lab Preparation	Exemplary materials are gathered and recorded on the lab report with clarity and concision.	All required materials are gathered and recorded on the lab report. The selected materials are suitable for the procedure.	Most required materials are gathered; not all may be recorded on the lab report. The selected materials are adequate for the procedure.	All required materials are not gathered, nor recorded on the lab report. The selected materials are not all adequate
Procedure	The procedure is efficiently followed and student skilfully controls all chosen variables. All procedural steps are clearly and concisely recorded on lab report.	The procedure is well followed and student demonstrates control of all chosen variables. All procedural steps are recorded on the lab report.	The procedure could be better followed, but student controls all chosen variables. Most procedural steps are recorded on the lab report.	The procedure is inadequately followed, and student does not control chosen variables. Many procedural steps are not entered on the lab report.
Data Presentation and Error Analysis	Data are presented in ways to best enable comprehension and interpretation, skilfully incorporating error analysis.	Data are presented in ways to enable comprehension and interpretation, incorporating error analysis	Data are presented in ways that somewhat aid comprehension and interpretation and incorporate error analysis, but presentation could be clearer	Data are not presented clearly. Error analysis is wrong or missing
Evaluation of Experiment	The findings are interpreted insightfully and skilfully compared with values in the literature. Weaknesses and limitations	The findings are interpreted and compared with values in the literature. Weaknesses and limitations are considered and recommendations are made to address them.	The findings are interpreted and compared with values in the literature, but not as fully or clearly as they might be. Not all of the weaknesses or limitations are discussed; few recommendations are made to address them.	The interpretation of the findings is illogical, and the findings are not compared with values in the literature. Few or no weaknesses or limitations are discussed; few or no recommendations are made to address them.
Conclusions and Recommendations	States logical conclusions and makes insightful recommendations, and identifies those that are pertinent /critical.	States logical conclusions and makes appropriate recommendations.	States conclusions and makes recommendations that may or may not be relevant to the investigation.	Minimal to state conclusions or make recommendations.

PO 5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Understand Tools	Demonstrates skilful ability to describe and explain the principles behind and applicability of engineering tools.	Demonstrates ability to describe and explain the principles behind and applicability of engineering tools.	Demonstrates some ability to describe and/or explain the principles behind and applicability of engineering tools.	Demonstrates minimal or no ability to describe and/or explain the principles behind and applicability of engineering tools.
Identify and Use Tools	Demonstrates skilful ability to identify and use the most relevant tools for a range of engineering activities.	Demonstrates an ability to identify and use relevant tools for an engineering activity.	Demonstrates some ability to identify and use tools for an engineering activity, but may not identify the most relevant tool.	Demonstrates minimal or no ability to identify or use tools for an engineering activity.
Evaluate Tools	Demonstrates skilful ability to evaluate the limitations of tools and discusses the assumptions.	Demonstrates the ability to identify the limitations of tools and understands the assumptions.	Demonstrates some ability to identify the limitations of tools and some understanding of the assumptions.	Demonstrates minimal or no ability to identify the limitations of tools and understand the assumptions.

PO 6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Considers Diverse Perspectives	Considers, explains and evaluates multiple diverse perspectives when investigating engineering impact on society and environment.	Considers and explains multiple diverse perspectives when investigating engineering impact on society and environment.	Some consideration of diverse perspectives when investigating engineering impact on society and environment.	Minimal consideration of diverse perspectives when investigating engineering impact on society and environment.
Considers Impact	Considers, explains and evaluates the impact of engineering interventions on society and environment.	Considers and explains the impact of engineering interventions on society and environment.	Some consideration of the impact of engineering interventions on society and environment.	Minimal or no consideration of the impact of engineering interventions on society and environment.
Solutions for Societal and Environmental Challenges	Identifies, explains and evaluates multiple solutions to challenges in society and the environment.	Identifies and explains multiple solutions to challenges in society and the environment.	Identifies some solutions to challenges in society and the environment	Minimal or no ability to identifying solutions to challenges in society and the environment.
Personal and Collective	Recognizes the responsibility of engineers and evaluates	Recognizes the responsibility of	Some recognition of the responsibility of	Minimal or no recognition of the

Responsibility	the consequences of engineering interventions on society and environment.	engineers and identifies the consequences of engineering interventions on society and environment.	engineers and the consequences of engineering interventions on society and environment.	responsibility of engineers and the consequences of engineering interventions on society and environment.
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PO 7: Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Solutions for Societal and Environmental Challenges	Identifies, explains and evaluates multiple solutions to challenges in society and the environment.	Identifies and explains multiple solutions to challenges in society and the environment.	Identifies some solutions to challenges in society and the environment.	Minimal ability to identifying solutions to challenges in society and the environment.
Personal and Collective Responsibility	Recognizes the responsibility of engineers and evaluates the consequences of engineering interventions on society and environment.	Recognizes the responsibility of engineers and identifies the consequences of engineering interventions on society and environment	Some recognition of the responsibility of engineers and the consequences of engineering interventions on society and environment	Minimal recognition of the responsibility of engineers and the consequences of engineering interventions on society and environment.

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Ethical Issue Recognition and Behavior	Approaches all situations with awareness and consideration of the ethical issues involved, and actively work to resolve them.	Able to approach situations with consideration of ethical issues, and acts to resolve them.	Some ability to approach situations with consideration of ethical issues, and/or some ability to act to resolve them.	Minimal ability to approach situations with consideration of ethical issues
Equity	Approaches all situations with consideration of equitable issues involved, and actively behave with inclusivity.	Able to approach situations with consideration of equitable issues, and acts with inclusivity.	Some ability to approach situations with consideration of equitable issues, and behaves with some regard for inclusivity.	Minimal ability to approach situations with consideration of equitable issues.

PO 9: Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Individual Idea/work Contributions:	Routinely contributes useful ideas to advance the work of team. Designated jobs are accomplished by deadline; completed work is carefully and meticulously prepared and meets all requirements	Contributes useful ideas to advance the work of the team. Designated jobs are accomplished by deadline; completed work meets requirements	Sometimes contributes useful ideas to advance work of team. Designated jobs are accomplished by deadline; completed work meets most requirements.	Rarely contributes useful ideas to advance the work of the team. Some designated jobs are accomplished by deadline; completed work meets some requirements.
Individual Preparation and/or Contribution to Team Meetings	Thoroughly and carefully prepared for team meetings. Contributes by sharing information and knowledge	Prepared for team meetings. Provides contributions.	Usually prepared for team meetings. Provides some contributions.	Routinely fails to prepare for team meetings. Provides little or no contributions
Time Management	Demonstrates the ability to manage time, including communicating and/or reacting and adapting to changes.	Demonstrates the ability to manage time, including communicating and/or reacting to changes.	Demonstrates some ability to manage time.	Demonstrates minimal or no ability to manage time.
Leadership Skills	Exemplifies leadership skills.	Demonstrates leadership skills.	Demonstrates some leadership skills at times.	Demonstrates minimal or no leadership skills.
Working with Others	Skillfully listens to, collaborates with, and champions the efforts of others	Listens to, collaborates with, and champions the efforts of others	Sometimes listens to, collaborates with, and champions others' efforts.	Rarely listens to, collaborates with, or champions others' efforts.
Management of Multidisciplinary Teams:	Has great appreciation for and understanding of disciplines outside of own. Works profitably with multidisciplinary team members.	Has appreciation for and understanding of disciplines outside of own. Works effectively with multidisciplinary team members.	Has some appreciation for and understanding of disciplines outside of own, but works less effectively with multidisciplinary team members.	Has no appreciation for or understanding of disciplines outside of own. Is unable to work effectively with multidisciplinary team members

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Tailoring Communication	Communication is skillfully crafted to suit level of target audience and is appropriate for company/persons represented.	Communicator takes into consideration the target audience and company/persons represented. Communication contains details and/or technical content that are suitable for level of target audience	Communicator takes some consideration of the target audience and company/persons represented. Communication may still contain some detail or technical content that are unsuitable for level of target	Communicator takes minimal or no consideration of the target audience or company/persons represented. Communication may contain details or technical content that are unsuitable

			audience	for level of target audience.
Delivery	Excellent delivery: <ul style="list-style-type: none"> • Sustained and comfortable eye contact • Can be clearly heard • Speaks confidently with few aids • Does not block screen • No distracting, nervous habits • Speaker is polished 	Good delivery: <ul style="list-style-type: none"> • Makes eye contact • Can be heard easily • Speaks comfortably with some aids • Does not block screen • No distracting nervous habits • Speaker appears comfortable 		
Appearance/Attire of Presenter:	Professional appearance/attire that is well suited for presentation.	Appearance/attire is appropriate for presentation.	Appearance/attire is not quite appropriate for the presentation.	Little or no consideration of appearance/attire taken.
Visual Aids	Visual aids are skillfully/creatively designed, skillfully used and seamlessly integrated into the presentation. The presentation looks polished and professional.	Visual aids are well designed, used and integrated into the presentation. The presentation looks professional.	Visual aids are somewhat well designed, used and integrated into the presentation. The presentation looks somewhat professional.	Visual aids poorly designed (difficult to read; poor level of detail; missing captions or labels; misspelled words), and poorly used/overused. The presentation looks unprofessional.

PO 11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Proposal	Demonstrates an ability to create a comprehensive proposal that skillfully addresses the problem and the client's needs.	Demonstrates an ability to create a proposal that addresses the problem and the client's needs.	Demonstrates some ability to create a proposal, which may not fully address the problem and/or the client's needs	Demonstrates minimal or no ability to create a proposal.
Budget	Demonstrates a skillful ability to create and/or adhere to a budget. Budget covers all applicable areas, with room for contingencies.	Demonstrates an ability to create and/or adhere to a budget. Budget covers all applicable areas of project.	Demonstrates some ability to create and/or adhere to a budget. Budget covers most applicable areas.	Demonstrates minimal or no ability to create or adhere to a budget.
Risk Analysis	Identifies all risks related to the project. Accurately estimates the likelihood of the risks, and the gravity of their effects.	Identifies risks related to the project. Estimates the likelihood of the risks, and the gravity of their effects.	Identifies some basic risks, and is able to estimate some of the likelihood of the risks, and the gravity of their effects.	Identifies few basic risks. May inaccurately estimate the likelihood of the risks, and/or the gravity of their effects.
Time and Change Management	Demonstrates a skillful ability to manage time and change.	Demonstrates an ability to manage time and change.	Demonstrates some ability to manage time and change.	Demonstrates minimal or no ability to manage

				time and change.
Quality Assurance	Demonstrates a skillful ability to understand quality assurance.	Demonstrates an ability to understand quality assurance.	Demonstrates some ability to understand quality assurance.	Demonstrates minimal or no ability to understand quality assurance.
Economics Principles	Demonstrates a skillful ability to comprehend and employ economic principles, including cost versus value.	Demonstrates an ability to comprehend and employ economic principles, including cost versus value.	Demonstrates some ability to comprehend and employ economic principles, including cost versus value.	Demonstrates minimal or no ability to comprehend and/or employ economic principles, including cost versus value.
Evaluation of Project Outcomes	Demonstrates a skillful ability to evaluate project outcomes and adapt for subsequent projects.	Demonstrates an ability to evaluate project outcomes and adapt for subsequent projects.	Demonstrates some ability to evaluate project outcomes and adapt for subsequent projects.	Demonstrates minimal or no ability to evaluate project outcomes or adapt for subsequent projects.

PO 12: Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Interest and Curiosity	Demonstrates a skillful ability to explore a subject/topic thoroughly, generating a variety of knowledge, possibly specialized or obscure, demonstrating deep fascination and curiosity.	Demonstrates an ability to explore a subject/topic, generating a variety of knowledge, demonstrating and curiosit	Demonstrates some ability to explore a subject/topic, providing some knowledge, demonstrating mild interest and growing curiosity.	Demonstrates minimal or no ability to explore a subject/topic, demonstrating minimal interest or curiosit
Adaptability to New Situations	Demonstrates a skillful ability to apply prior knowledge, skills and/or behaviours in an innovative way to new situations.	Demonstrates an ability to apply prior knowledge, skills and/or behaviours to new situations.	Demonstrates some ability to apply prior knowledge, skills and/or behaviours to new situations.	Demonstrates minimal or no ability to apply prior knowledge, skills and/or behaviours to new situations.
Staying Current	Demonstrates an active and thorough engagement, and promotes staying current and immersed in the chosen field.	Demonstrates engagement in staying current in the chosen field.	Demonstrates some engagement in staying current in the chosen field.	Demonstrates minimal or no awareness or appreciation for staying current in the chosen field.
Asking Questions	Demonstrates a skillful ability to recognize and construct meaningful and pertinent questions.	Demonstrates an ability to recognize and construct meaningful and/or pertinent questions.	Demonstrates some ability to recognize and/or construct meaningful or pertinent questions.	Demonstrates minimal or no ability to recognize or construct meaningful or pertinent questions. May not be inclined to ask questions.
Execute a Search Strategy and	Demonstrates the ability to use efficient and effectively-	Demonstrates the ability to use an	Demonstrates the ability to use search	Demonstrates minimal or no

<p>Retrieve Needed Information</p>	<p>designed search strategies to retrieve the most relevant and appropriate information sources. Effectively and recurrently refines search.</p>	<p>assortment of search strategies to retrieve relevant and appropriate information sources. Refines search as needed.</p>	<p>strategies to retrieve some information sources, but strategies are mainly simplistic and limited, and search scope too broad for task at hand. (Does not use controlled vocabularies.) Information is found within a narrow range of sources.</p>	<p>ability to formulate simple searches effectively. Performs very basic keyword searches (single words and/or simple phrases), which retrieve unacceptably large numbers of hits. Information is selected randomly, with little or no applicability or value</p>
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RUBRICS FOR ASSIGNMENT

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Organization	Writing shows high degree of attention to logic and reasoning of points. Unity clearly leads the reader to the conclusion and stirs thought regarding the topic	Writing is coherent and logically organized with transitions used between ideas and paragraphs to create coherence. Overall unity of ideas is present	Writing is coherent and logically organized. Some points remain misplaced and stray from the topic	Writing lacks logical organization but shows some coherence but ideas lack unity
Content	Content indicates synthesis of ideas, indepth analysis and evidences original thought and support for the topic. Appropriate illustrations	Content indicates original thinking and develops ideas with sufficient and firm evidence. Adequate illustration	Content indicates thinking and reasoning applied with original thought on a few ideas. Inadequate illustration	Shows some thinking and reasoning but most ideas are underdeveloped and unoriginal. No illustrations
Development	Main points well developed with high quality and quantity support. Reveals high degree of critical thinking	Main points well developed with quality supporting details and quantity. Critical thinking is weaved into points	Main points are present with limited detail and development. Some critical thinking is present	Main points lack detailed development. Ideas are vague with little evidence of critical thinking
Grammar & Style	Essay is free of distracting spelling, punctuation, and grammatical errors and shows outstanding style and creative use of sentence structure	Essay has few spelling, punctuation, and grammatical errors and attains college level style. Very few fragments or run-ons	Most spelling, punctuation, and grammar correct allowing reader to progress though essay with some variety in structure. Some errors remain	Spelling, punctuation, and grammatical errors with little or no variety in sentence structure. Errors are frequent
Reference	Adequate, complete and standard references	Adequate and complete references but substandard	Adequate but substandard and incomplete references	Inadequate and incomplete references



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RUBRICS FOR TUTORIALS

Indicator	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Define Problem	The group identifies the key elements of the problem and clearly outlines the objectives in an effective manner with no assistance.	The group identifies the key elements of the problem and clearly outlines the objectives in an effective manner with little assistance.	The group identifies the key elements of the problem and clearly outlines the objectives in an effective manner with assistance.	The group is unable to identify the key elements of the problem and/or the objectives without a great deal of assistance
Process	Approach chosen is clearly shown, clearly written & all elements are valid.	Valid approach with minor errors that don't disrupt understanding.	Valid approach with multiple errors that impede understanding	Little understanding of how to approach the problem.
Evaluation	The group determines whether the results are accurate and reflects on any issues, mistakes, or misunderstandings encountered during the problem solving process with no assistance.	The group determines whether the results are accurate and reflects on any issues, mistakes, or misunderstandings encountered during the problem solving process with little assistance.	The group determines whether the results are accurate and reflects on any issues, mistakes, or misunderstandings encountered during the problem solving process with assistance.	The group is unable to determine the accuracy of the results and does not reflect on issues, mistakes, or misunderstandings without a great deal of assistance.
Answer	100% correct answer – analytically numerically & conceptually.	Correct answer analytically, but not numerically.	Incorrect answer, but on the right path.	Unable to reach a correct answer on this path.



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RUBRICS FOR INTERNSHIP

Criteria	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Contents from Title Page to Abstract	All required information, detailed and well written abstract.	Most of required information. Abstract is reasonably good.	Required information; But not well written and is incomplete.	Missing information and/or no abstract.
Organization of the report	Proper formatting, sections clearly labeled, well-organized, professional style.	Proper formatting with labeled sections	Some formatting errors or missing sections	Multiple formatting errors or missing sections.
Topics and Quality of Information	All of the suggested topics are covered in good detail and specific to abstract	At least 4 of the suggested topics are covered .in good detail. Some details are vague and do not support the topic.	Focused on only one topic in good detail or at least 3 topics with partial details. Details somewhat sketchy, do not support the topic	Insufficient number of topics and unable to find specific details.
Grammar and Spelling	No errors	Only one or two errors	More than two errors	Numerous errors distract the understanding
Skills acquired during internship	Skills are acquired with utmost clarity and demonstrated them correctly and confidently	Skills are acquired at a basic level and demonstrated them correctly	Skills are acquired at a basic level with some ambiguities and some level of difficulty to demo	Ambiguous approach to learn the skills and no focus
References	Multiple references appropriately placed, formatted correctly.	References limited, format mostly correct.	References sparse, poor formatting	No appropriate references
Timely submission of report	Submitted on time with no need of corrections and without any reminders.	Submitted with a delay of one week with all recommended corrections done	Submitted with a delay of one week with at least 50% of recommended corrections done	Did not submit even after reminder
Presentation to Evaluation Committee	PPT has all needed slides that are logically sequenced Content is covered well highlighting	PPT has most of the needed slides. Logical sequence can be refined. Content coverage is	PPT has the needed slides, but not structured well. Content is covered satisfactorily.	PPT has insufficient slides and has no structure in place. Content coverage is haphazard.

	<p>skills acquired during internship. Confidence is clearly visible Oral communication is well modulated Answered the questions posed by evaluation committee.</p>	<p>good. Confidence is good. Oral communication is reasonably modulated Attempted answering of the questions posed by evaluation committee.</p>	<p>Confidence can be improved. Oral communication is satisfactory. Tried to understand the questions posed by evaluation committee</p>	<p>Low confidence is clearly visible Oral communication needs lot of improvement Indifferent to understand the questions posed by evaluation committee</p>
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RUBRIC FOR ASSESSING EXTERNAL LAB EXAM

Context	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Objective & methodology	All of the following were CLEARLY described: The steps or strategies used in sample preparation, the measurement tools selected, the experimental setup, the measurement or data collection techniques employed, the precautionary measures taken, the independent variables and dependent variables chosen.	Four of the following were clearly described and the other was disorganised: The steps or strategies used in sample preparation, the measurement tools selected, the experimental setup, the measurement or data collection techniques employed, the precautionary measures taken, the independent variables and dependent variables chosen.	Three of the following were clearly described while the others were quite disorganised.: The steps or strategies used in sample preparation, the measurement tools selected, the experimental setup, the measurement or data collection techniques employed, the precautionary measures taken, the independent variables and dependent variables chosen	Most of the following were NOT CLEARLY described. :The steps or strategies used in sample preparation, the measurement tools selected, the experimental setup, the measurement or data collection techniques employed, the precautionary measures taken, the independent variables and dependent variables chosen
Experiment Procedures (10 marks)	Data collected is relevant and sufficient to answer the question. Data was tabulated in EXCEL. Each column was labeled with the appropriate quantity, units and prefixes (if required).	Data collected is relevant and sufficient to answer the question. Data was tabulated in EXCEL. Some columns were NOT labeled with the appropriate quantity, units and prefixes (if required).	Data collected is relevant and sufficient to answer the question. Data was tabulated in EXCEL. Columns were NOT labeled with the appropriate quantity, units and prefixes (if required).	Data collected is relevant and but NOT sufficient to answer the question. Data was tabulated in EXCEL. Columns were NOT labeled with the appropriate quantity, units and prefixes (if required).
Data interpretation (10marks)	Excellent insight and well focused results and discussion; Data completely and appropriately interpreted and no over-interpretation	Adequate insight but missed some important points in results and discussion; Interpreted most data correctly but some conclusions may be suspect or over-interpreted	Little insight and analyzed only the most basic points; Interpreted some data correctly but significant errors, omissions still present	Missed some points of the experiment; Little or no attempt to interpret data or over-interpreted data.
Discussion & conclusion (10 marks)	Data is complete and relevant; Tables (wherever applicable) are easy to read and units are provided. Graphs (wherever applicable) are labelled and	Tables and graphs (wherever applicable) are drawn but few readings missing or not clearly specified	Data is brief and missing significant pieces of information; Tables and graphs (wherever applicable), are	Missing significant pieces of information; Tables and graphs (wherever applicable), are incomplete

	show trends		incomplete	
Record&observation (10 marks)	Lab report is well organized as directed and submitted on time	Lab report is well organised but not submitted on time	Report contains few errors and not submitted on time	Report contains more errors and not submitted on time
Viva (5 marks)	Demonstrates deep knowledge of tools and procedures; answer the related questions with explanations and elaboration.	Adequate knowledge of most tools and procedures; answer the related questions, but fails to elaborate	Superficial knowledge of tools and procedures; able to answer only some of the related basic questions	Lack of information in some of the tools and procedures; cannot even answer basic related questions



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RUBRIC FOR ASSESSING INTERNAL LAB EXAM

Context	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Knowledge of Tools and Procedures	Demonstrates deep knowledge of tools and procedures; answer the related questions with explanations and elaboration	Adequate knowledge of most tools and procedures; answer the related questions, but fails to elaborate	Superficial knowledge of tools and procedures; able to answer only some of the related basic questions	Lack of information about most of the tools and procedures; cannot even answer basic related questions
Experiment Procedures	Excellent insight and well focused results and discussion; Data completely and appropriately interpreted and no over-interpretation	Adequate insight but missed some important points in results and discussion; Interpreted most data correctly but some conclusions may be suspect or over-interpreted	Little insight and analyzed only the most basic points; Interpreted some data correctly but significant errors, omissions still present	No insight and entirely missed the point of the experiment; Little or no attempt to interpret data or over-interpreted data.
Result Representation and Discussion	Data is complete and relevant; Tables (wherever applicable) are easy to read and units are provided. Graphs (wherever applicable) are labelled and show trends	Tables and graphs (wherever applicable) are drawn but few readings missing or not clearly specified	Data is brief and missing significant pieces of information; Tables and graphs (wherever applicable), are incomplete	No data reported
Viva	Demonstrates deep knowledge of tools and procedures; answer the related questions with explanations and elaboration.	Adequate knowledge of most tools and procedures; answer the related questions, but fails to elaborate	Superficial knowledge of tools and procedures; able to answer only some of the related basic questions	Lack of information about most of the tools and procedures; cannot even answer basic related questions



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RUBRIC FOR ASSESSING SEMINAR

MARKING RUBRICS	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Content: Relates to topic, detailed, and accurate	All content directly related to the topic. Opinions were always supported by fact if possible	Content directly related to the topic. Almost all opinions were supported by facts.	Demonstrated Basic understanding of the topic. Many opinions were not supported by facts.	Few facts related to the topic. Most Information was opinion.
Knowledge: Demonstrate knowledge of subject	Showed a thorough knowledge of the topic. Able to use assessor questions to further demonstrate understanding of the topic. Appeared to be an expert on the subject being presented	Showed a working knowledge of the topic. Able to satisfactorily answer assessor questions and provided additional information upon request	Showed basic knowledge of the topic. Able to address assessor questions by repeating parts of the presentation - did not provide any additional information.	Showed little or no knowledge of the topic. Unable to answer assessor questions or comment further on any part of the presentation.
Communication: Language, Appropriate posture and effective eye contact	Language and/or delivery resulted information being communicated orally with high degree of effectiveness	Language and/or delivery resulted information being communicated orally with considerable effectiveness	Language and/or delivery resulted information being communicated orally with some effectiveness	Language and/or delivery resulted information being communicated orally with limited effectiveness
Application	Seminar was organized in a highly effective manner Very effective facilitation of class discussion	Seminar was organized in an effective manner Effective facilitation of class discussion	Seminar was organized in a somewhat effective manner Moderately effective facilitation of class discussion	Seminar was not organized in an effective manner Ineffective facilitation of class discussion



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RUBRIC FOR ASSESSING MINI PROJECT

Categories	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Content	Title clarifies purpose of investigation; show clear understanding of the problem	Title gives description of investigation; show thought full approach to problem	Title vaguely describes the investigation; problem statement is not clear	Title does not relate to the project; problem statement is not logical or irrelevant
Research quality	Included facts, quotes and paraphrasing from reliable sources. included research from subject-matter expert	Included facts, conclusions and opinions from reliable sources	Included a mixture of facts from reputable sources and opinions from unreliable sources	Included more opinion than fact. information was taken from unreliable sources
Experimental	Data collection, Data Tabulation, calculation and organization, labling, Units labeling were accurate	Data collection, Data Tabulation, calculation and organization, labling, Units labeling were with little error	Data collection, Data Tabulation, calculation and organization, labling, Units labeling were deviated	Data collection, Data Tabulation, calculation and organization, labling, Units labeling were poor
Quality of Report writing	Shows clarity by organizing main ideas and supporting details; within paragraph structure; syntax grammar, tenses and spelling accurate	Shows clear main ideas, lacks supporting details may lack paragraph structure; syntax, grammar, tenses and spelling may contain errors	May combine main ideas in an distinguishable ways; syntax, grammar, tenses and spelling contain numerous errors	Lacks main ideas and /or details; syntax grammar tense and spelling contains numerous errors
References	All of the references are important to the analysis and use correct format	Most of the references used are important to the analysis, and are of good quality and done in correct format.	Most of the references used are important and are done in wrong format.	Most of the references used are not important and are done in wrong format.
Team work	The team worked well together to achieve objectives. Each member contributed in a valuable way to the project. All data sources indicated a high level of mutual respect and collaboration.	The team worked well together to achieve objectives. Each member contributed in a valuable way to the project. All data sources indicated a high level The team worked well together most of the time, with only a few occurrences of communication breakdown or failure to collaborate when	Team did not collaborate or communicate well. Some members would work independently, without regard to objectives or priorities.	Team did not collaborate or communicate well. Some members would work independently, without regard to objectives or priorities. A lack of respect and regard was frequently noted.

		appropriate. Members were mostly respectful of each other of mutual respect and collaboration.		
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RUBRIC FOR ASSESSING MAJOR PROJECT

Categories	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Content	Title clarifies purpose of investigation; show clear understanding of the problem	Title gives description of investigation; show thought full approach to problem	Title vaguely describes the investigation; problem statement is not clear	Title does not relate to the project; problem statement is not logical or irrelevant
Research quality	Included facts, quotes and paraphrasing from reliable sources.included research from subject-matter expert	Included facts, conclusions and opinions from reliable sources	Included a mixture of facts from reputable sources and opininons from unreliable sources	Included more opinion than fact.information was taken from unreliable sources
Experimental	Data collection,Data Tabulation, calculation and organization, labling,Units labeling were accurate	Data collection,Data Tabulation, calculation and organization, labling,Units labeling were with little error	Data collection,Data Tabulation, calculation and organization, labling,Units labeling were deviated	Data collection,Data Tabulation, calculation and organization, labling,Units labeling were poor
Quality of Report writing	Shows clarity by organizing main ideas and supporting details; within paragraph structure; syntax grammar, tenses and spelling acurate	Shows clear main ideas, lacks supporting details may lack paragraph structure; syntax, grammar, tenses and spelling may contain errors	May combine main idesd in an distinguishable ways; syntax, grammar, tenses and spelling contain numerous errors	Lacks main ideas and /or details; syntax grammar tense and spelling contains numerous errors
References	All of the references are important to the analysis and use correct format	Most of the references used are important to the analysis, and are of good quality and done in correct format.	Most of the references used are important and are done in wrong format.	Most of the references used are not important and are done in wrong format.
Team work	The team worked well together to achieve objectives. Each member contributed in a valuable way to the project. All data sources indicated a high level of mutual respect and	The team worked well together to achieve objectives. Each member contributed in a valuable way to the project. All data sources indicated a high level The team worked well together	Team did not collaborate or communicate well. Some members would work independently, without regard to objectives or priorities.	Team did not collaborate or communicate well. Some members would work independently, without regard to

	collaboration.	most of the time, with only a few occurrences of communication breakdown or failure to collaborate when appropriate. Members were mostly respectful of each other of mutual respect and collaboration.		objectives or priorities. A lack of respect and regard was frequently noted.
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RUBRIC FOR ASSESSING COMPREHENSIVE VIVA

Categories	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Content	show clear understanding of the problem	show thought full approach to problem	problem understanding is not clear	problem understanding is not logical or irrelevant
Knowledge	Numerous facts and detail's are recalled and answer is thorough	Sufficient amounts of facts are recalled answer is complete and acceptable	Sufficient amounts of facts are recalled answer is incomplete	Limited amount of information is recalled answer is incomplete
Thinking skill	Comprehensive application of thinking skill	Appropriate application of thinking skill	Limited application of thinking skills	Poor thinking skills
Clarification	Brief explanation of content with evidence	Brief explanation of content with little evidence	Explained with little evidence	little explanation with little evidence
Vocabulary/communication skills	Brief explanation of content in excellent manner with out communication gap	Brief explanation of content with out communication gap	Brief explanation of content with little communication gap	Poor/average explanation of content with communication gap



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RUBRIC FOR ASSESSING NSS ACTIVITIES

Categories	LEVEL-4	LEVEL-3	LEVEL-2	LEVEL-1
Number Of Activities Participated	Minimum 4 activities	Minimum 3 activities	Minimum 2 activities	Minimum 1 activity
Organization of activities	Student displays complete organization in ordering ideas. Many creative and inventive ideas apparent.			
Coordination				