Training on Effective Teaching-Learning, Assessment, and Course File Management

IQAC, Rajshahi University

19 April, 2026

Rubrics for Assessment

Md. Emdadul Hoque, *PhD*

Professor, Department of Mechanical Engineering

&

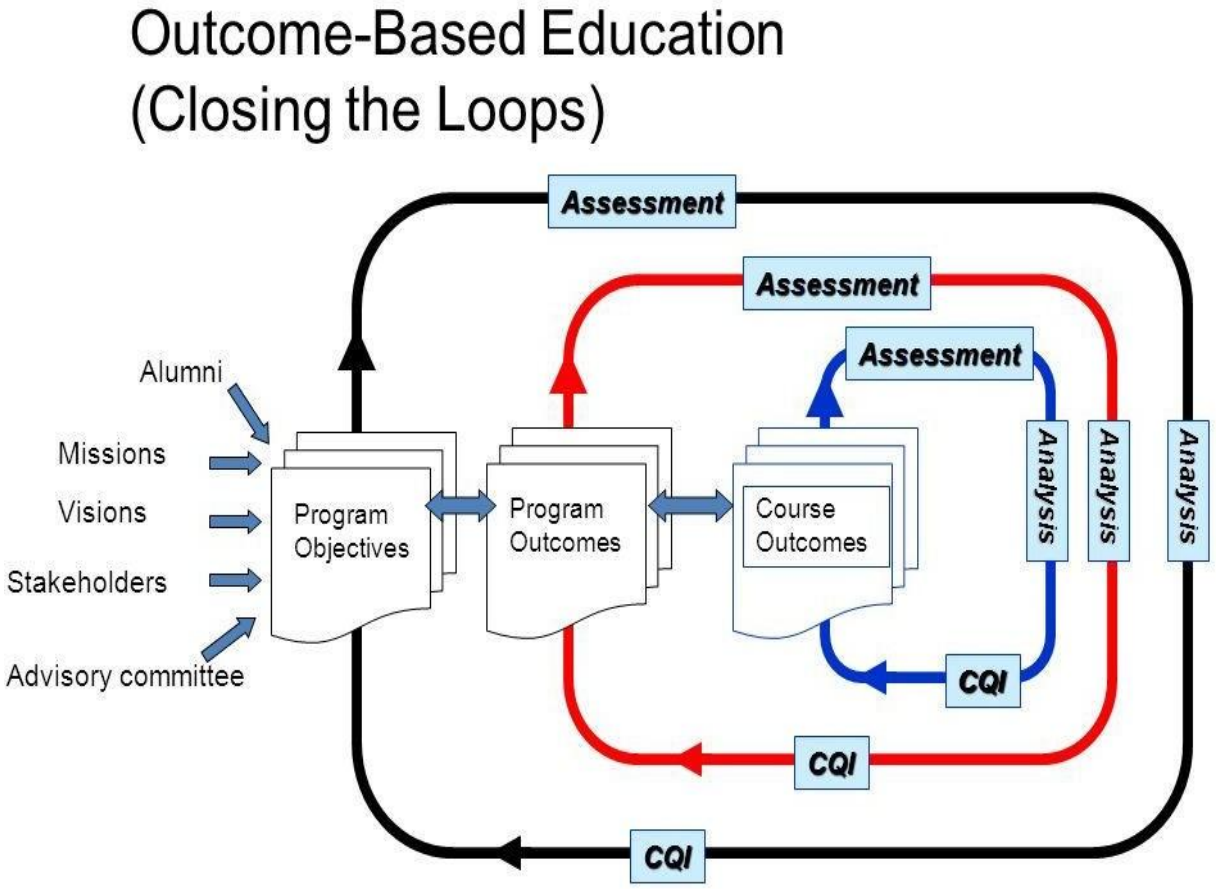
Director, IQAC

Rajshahi University of Engineering & Technology

Outline

1. Introduction
2. Importance of Rubrics
3. Design of Rubrics of Assessment
4. Examples/ Hands-On Session
5. Concluding Remarks

OUTCOME BASED EDUCATION



National and International Accrediation

National and International Accrediation

BEXIMCO PHARMA

BSRM
building a safer nation

WALTON

United Hospital
Exceptional People... Exceptional Care

LEARNING OUTCOME DOMAINS AND PO

(BAC)

To **address fast growing changes of societal needs**

BNQF adopts four learning outcome domains that are-

1. **Fundamental domain**
2. **Social domain**
3. **Thinking domain**
4. **Personal domain**

LEARNING OUTCOME DOMAINS AND PO

Based on the following skills

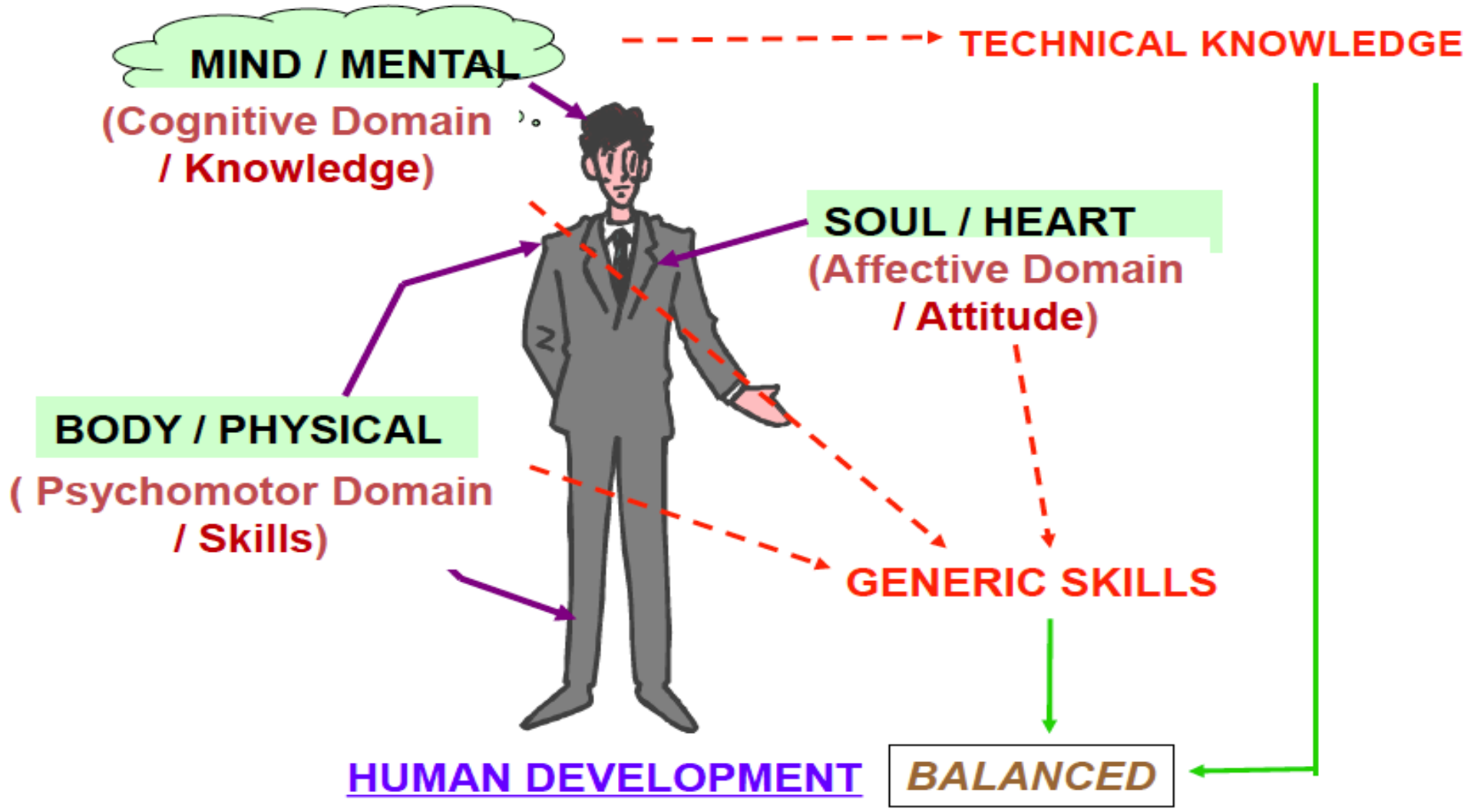
1. **Complex Problem Solving**
2. **Critical Thinking**
3. **Creativity**
4. **People Management**
5. **Coordinating with others**
6. **Emotional Intelligence**
7. **Judgment and Decision Making**
8. **Service Orientation**
9. **Negotiation**
10. **Cognitive Flexibility**

Program Outcomes (PO) and Learning Taxonomy

(BAETE)

Program Outcomes	NO	Learning Taxonomy
Engineering Knowledge (K1-K4)	PO1	Cognitive
Problem Analysis (K1-K4)	PO2	Cognitive
Design/development of Solutions (K5)	PO3	Cognitive
Investigation (K8)	PO4	Cognitive, Psychomotor
Modern Tool Usage (K6)	PO5	Cognitive, Psychomotor
The Engineer and Society (K7)	PO6	Cognitive, Affective
Environment and Sustainability (K7)	PO7	Cognitive, Affective
Ethics (K7)	PO8	Cognitive, Affective
Individual Work and Teamwork	PO9	Affective
Communication	PO10	Affective
Project Management and Finance	PO11	Cognitive, Affective
Life-Long Learning	PO12	Affective

OBE-All About Human Being



Bloom's Taxonomy

Three domains of educational activities or learning

Cognitive or Knowledge *(head)*
Development of mental/intellectual skills

Affective or Attitude
(heart)
Manner in which we deal with things emotionally - feelings, values, attitudes

Psychomotor or Skill
(hand)
Manner in which we deal with things emotionally - feelings, values, attitudes

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Bloom's Taxonomy

Cognitive Domain

Level	Description (Ability to)
Remember	Recognize, recall or retrieve previously learned information
Understand	Understand and restate or describe a learnt concept using their own words or explanation.
Apply	Use a concept in a new situation or unprompted use of an abstraction. Apply what was learned in the classroom into novel situations
Analyze	Separate material or concepts into component parts so that its organizational structure may be understood. Distinguish between facts and inferences.
Evaluate	Judge, critic and decide about the value of ideas or materials based on criteria and standards
Create	Build a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure

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Bloom's Taxonomy

Action Verb Appropriate for Cognitive Domain

Level	Action Verb
Remember	define, describe, identify, know, label, list, names, outlines, recall, recognize, reproduce, select, state
Understand	clarify, comprehend, convert, describe, discuss, defend, distinguish, estimate, explain, extend, generalize, give an example, identify, infer, interpret, illustrate, paraphrase, predict, review, rewrite, select, summarize, translate
Apply	apply, change, choose, classify, compute, construct, demonstrate, discover, interpret, manipulate, modify, operate, predict, prepare, produce, relate, show, solve, use, write
Analyze	analyze, assumption, breaks down, categorize, classify, compare, contrast, diagram, discover, deconstruct, differentiate, dissect, divide, discriminate, distinguish, distinction, examine, identify, illustrate, inspect, infer, list, motive, outline, relate, select, separate, simplify, survey, test, relationships, function, take part in
Evaluate	apprise, assess, choose, compare, conclude, contrast, criticize, critiques, defend, describe, discriminate, evaluate, explain, interpret, justify, relate, summarize, support
Create	build, categorize, combine, compile, compose, create, change, devise, design, explain, generate, improve, modify, minimize, organize, propose, plan, solve, solution, rearrange, reconstruct, relate, reorganize, revise, rewrite, summarize, synthesize, tell, write

Bloom's Taxonomy

Psychomotor Domain

Level	Definition	Example	Action Verb
Imitation	Observing and patterning behavior after someone else	Watch teacher or trainer and repeat action, process or activity	copy, follow, replicate, repeat, adhere
Manipulation	Reproduce activity from instruction or memory	Carry out task from written or verbal instruction	re-create, build, perform, execute, implement
Precision	Execute skill reliably, independent of help	Perform an activity with expertise and to high quality without assistance or instruction; able to demonstrate an activity to other learners	demonstrate, show, complete, perfect, calibrate, control
Articulation	Adapt and integrate expertise to satisfy a non-standard objective	Relate and combine associated activities to develop methods to meet varying, novel requirements	construct, solve, adapt, combine, coordinate, integrate, develop, formulate, modify, master
Naturalization	Mastering a high level performance until it become second-nature or natural.	Design, specify, manage, invent, project-manage	Define aim, approach and strategy for use of activities to meet

Bloom's Taxonomy

Affective Domain

Level	Definition	Example	Action Verb
Receiving	Being aware of or attending to something in the environment	Individual reads a book passage about civil rights	Accept, Attend, Develop, Recognize
Responding	Showing some new behavior as a result of experience	Individual answers questions about the book, reads another book by the same author, another book about civil rights, etc.	Complete, Comply, Cooperate, Discuss, Examine, Obey, respond
Valuing	Showing some definite involvement or commitment	The individual demonstrates this by voluntarily attending a lecture on civil rights.	Accept, Defend, Devote, Pursue, Seek
Organization	Integrating a new value into one's general set of values, giving it some ranking among one's general priorities	The individual arranges a civil right rally	Codify, Discriminate, Display, Order, Organize, Systematize, Weigh
Characterization by value	Acting consistently with the new value	The individual is firmly committed to the value perhaps becoming a civil right leader	Internalize, Verify

This workshop focuses on a simple but important question:

How do we fairly and effectively assess students when there is no single correct answer?

Towards Open-Ended Lab

Development of Slurry Flow battery

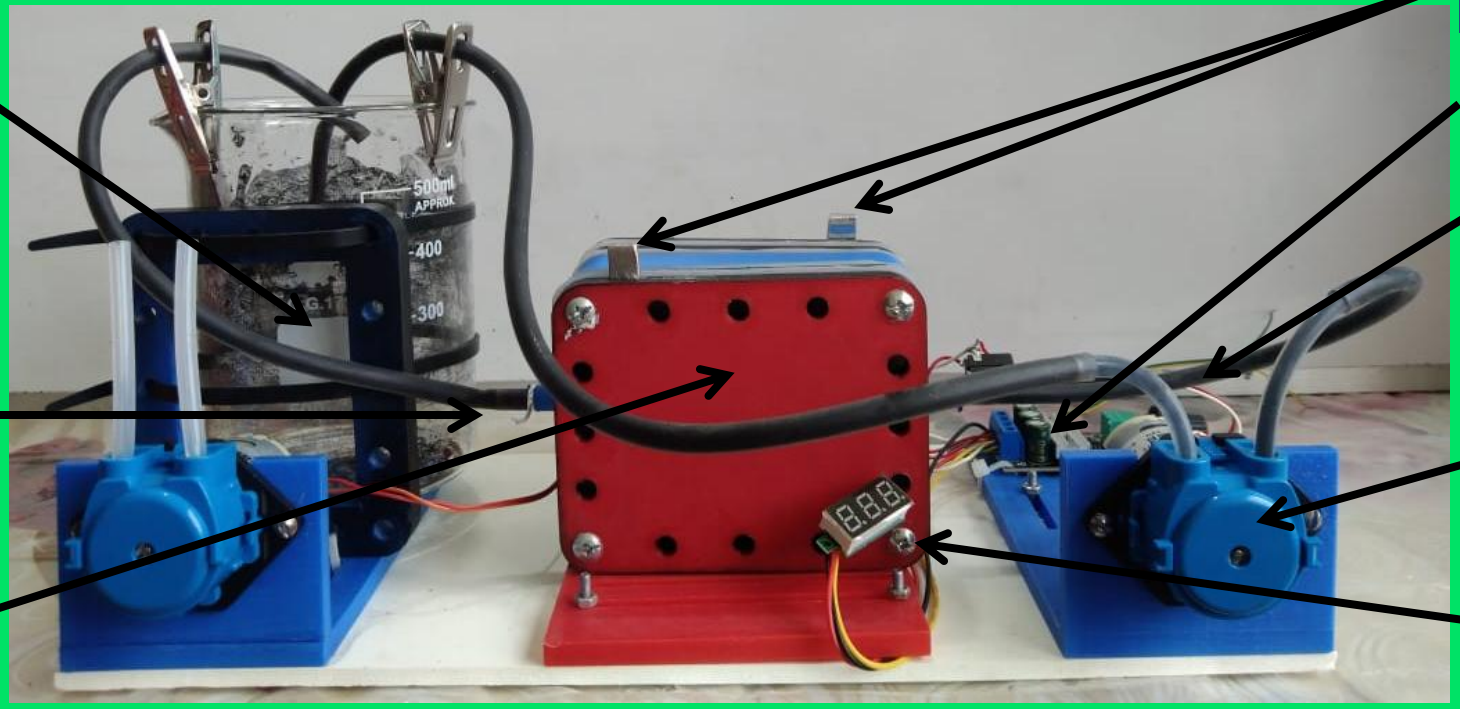


Fig : Experimental Setup

Experimental Results

Effect of Flow Rate on Impedance value :

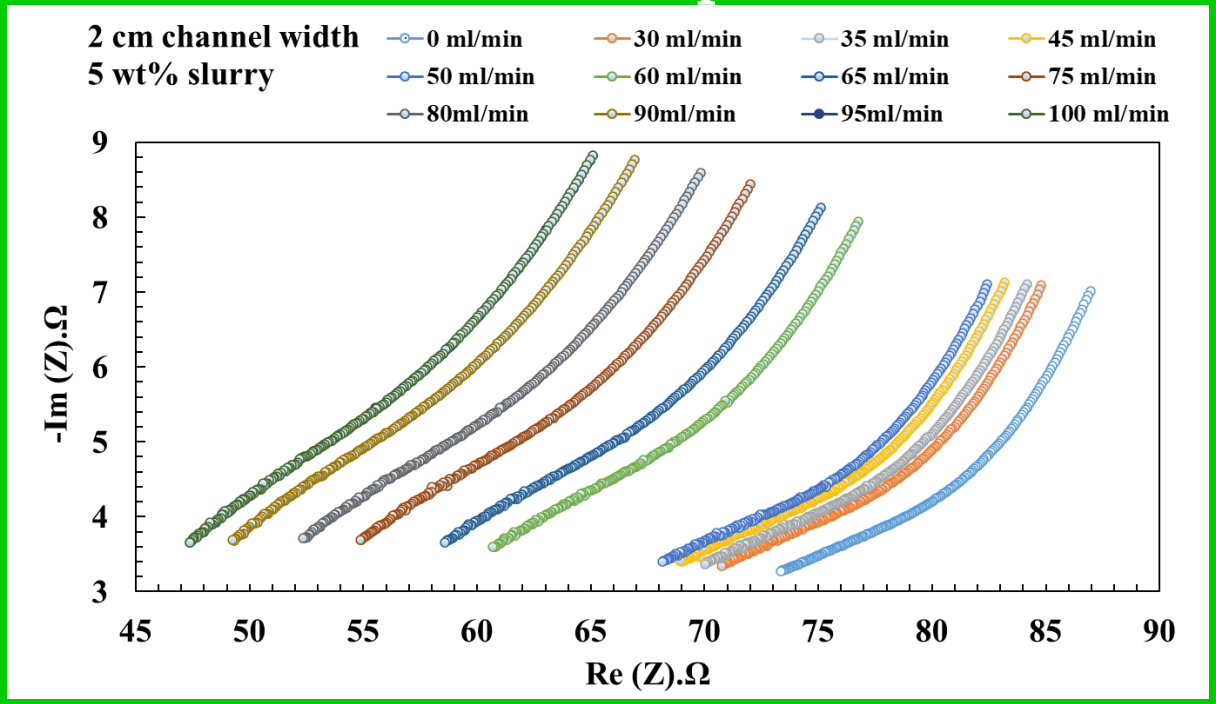


Fig 24: Impedance Variation of 2cm channel width at different flow rate

- ✓The real and imaginary part shifts leftward.
- ✓As the flow rate increases the solution series resistance decreases.

OBE Teaching-Learning: Strategy and Materials

Teaching-Learning Strategy
☑ Lecture
☑ Tutorial
☑ Discussion
☑ Interaction
☑ Audio/Video
☐ Others: _____

Teaching-Learning Materials
☑ Lecture note / hand out
☑ Text & reference books
☑ Journal / conference papers
☑ Online materials
☑ Lab manual / lab sheet
☐ Others: _____

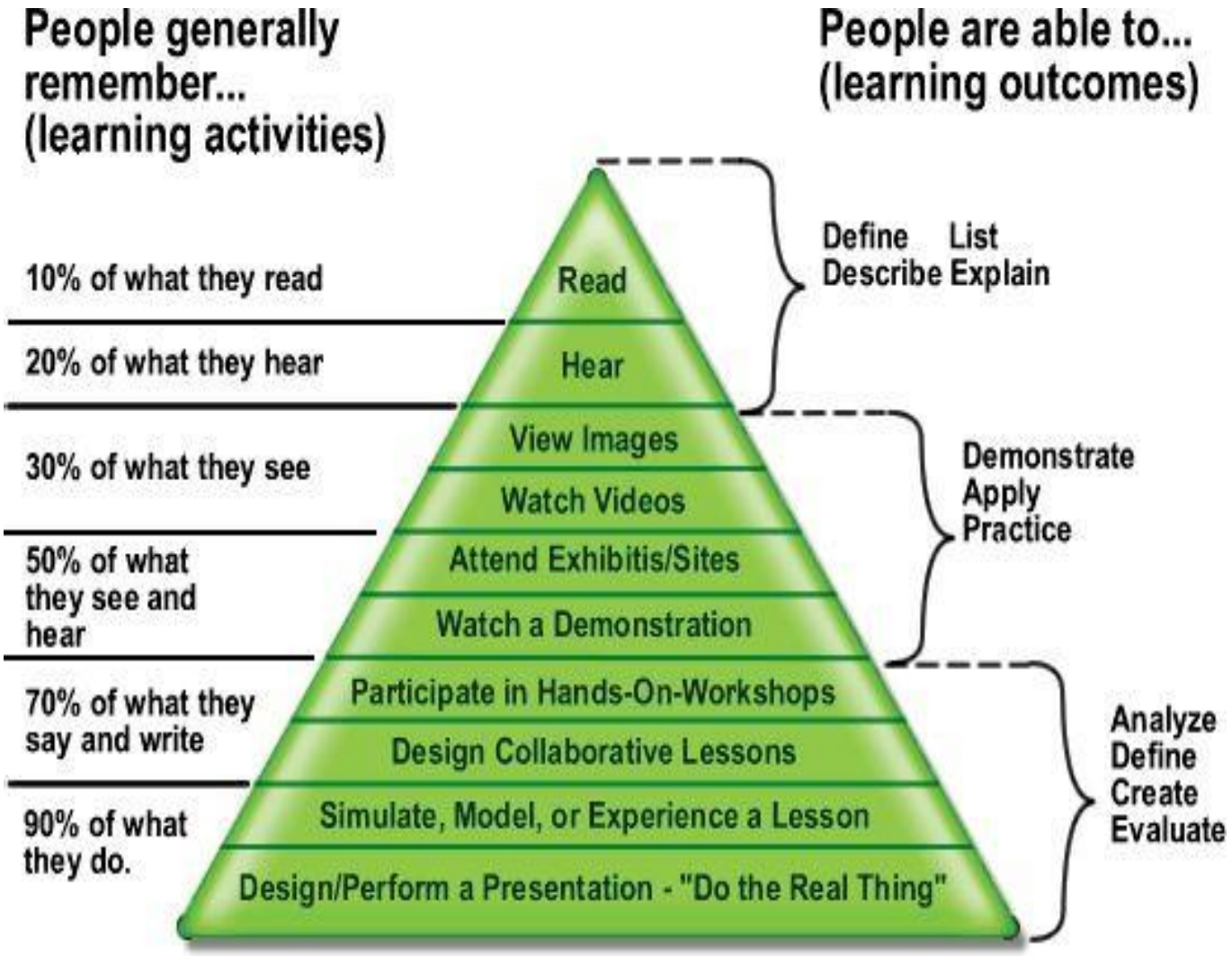
OBE Teaching-Learning: Strategy and Materials

CO No.	CO Statement	Corresponding PO	Domain and level of learning taxonomy*	Delivery methods and activities	Assessment tools
CO1	**Develop** algorithms, pseudo codes, and flowcharts in a logical manner to solve problems.	PO1: Engineering Knowledge	Cognitive Level 3 (Apply)	☑ Lecture ☑ Tutorial ☑ Discussion ☑ Interaction ☐ Audio/Video	☑ Class Test ☑ Mid-Term Exam ☐ Final Exam ☐ Assignment ☐ Project (Presentation & Report)
CO2	**Implement** appropriate conditionals, iteration constructs, control structures, and functions to solve programming tasks.	PO1: Engineering Knowledge	Cognitive Level 3 (Apply)	☑ Lecture ☑ Tutorial ☑ Discussion ☑ Interaction ☐ Audio/Video	☐ Class Test ☑ Mid-Term Exam ☑ Final Exam ☑ Assignment ☐ Project (Presentation & Report)
CO3	**Apply** data structures and memory addressing techniques in programming.	PO1: Engineering Knowledge	Cognitive Level 3 (Apply)	☑ Lecture ☑ Tutorial ☑ Discussion ☑ Interaction ☐ Audio/Video	☐ Class Test ☐ Mid-Term Exam ☑ Final Exam ☑ Assignment ☐ Project (Presentation & Report)

*Levels in Bloom's Cognitive Domain: Level 1: Remember, Level 2: Understand, Level 3: Apply, Level 4: Analyze, Level 5: Evaluate, Level 6: Create

*Levels in Bloom's Affective Domain: Level 1: Receive, Level 2: Respond, Level 3: Value, Level 4: Organize, Level 5: Internalize

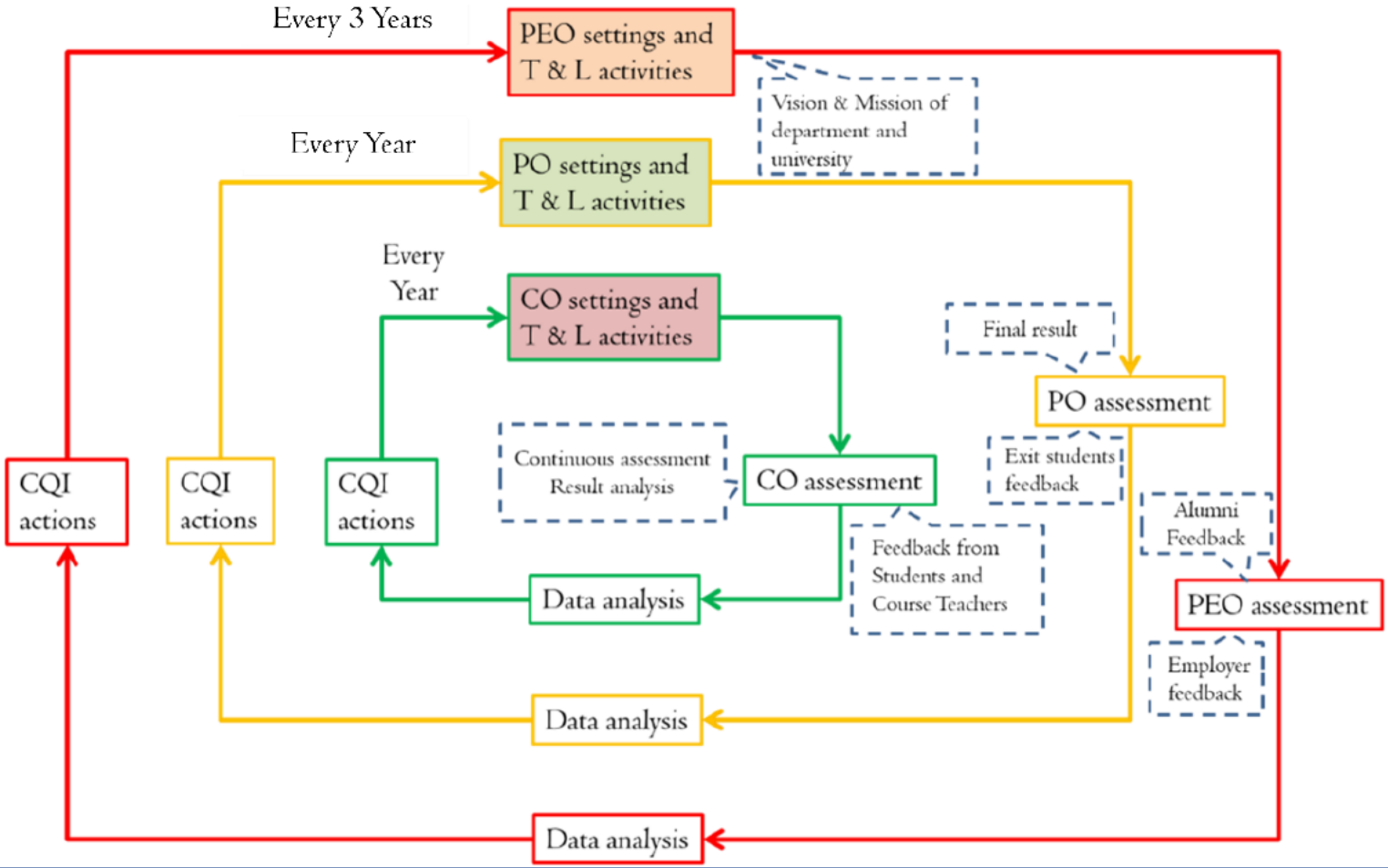
Learning Pyramid



Assessment Criteria

Theory Courses	CO Attainment	Sessional Courses	CO Attainment	Thesis	CO Attainment
Assignment (10%)	✓	Lab Report (45%)	✓	Presentation (25%)	
Class Participation (10%)		Class Participation (10%)		Report (50%)	✓
Class Test (20%)	✓	Board Viva (25%)		External Examiner (25%)	
Final Examination (60%)	✓	Quiz (20%)			

CQI Loops


Every 3 Years
PEO settings and T & L activities
Vision & Mission of department and university
Every Year
PO settings and T & L activities
Every Year
CO settings and T & L activities
Final result
PO assessment
Continuous assessment Result analysis
CO assessment
Exit students feedback
Alumni Feedback
CQI actions
CQI actions
CQI actions
Feedback from Students and Course Teachers
Data analysis
PEO assessment
Employer feedback
Data analysis
Data analysis

CO Assessment in Courses

- CO assessment and assessment in course (i.e., grades) are different
- Which courses should we consider?
- Assessment in all courses?
  - May be for selective section in case of multiple sections
  - May be in selective semester/trimester
- Assessment in selective core courses?
  - Even then assessment in all courses are required for course-level CQI

CO Assessment in Theory Courses

- May exclude class tests/quizzes
  - Most of the time not all CTs are counted (e.g., 3 out of 4)
  - Midterm/Final always cover the whole syllabus
  - No need to include same question/content twice
  - Too many assessment will make our life difficult
  - Assignments are useful if open-ended, individual problem
- First we need to prepare course syllabus that must have
  - Course Outcomes (COs)
  - CO with Assessment Methods
  - Mapping of COs and Program outcomes

CO Assessment- Algorithm

- Course Outcomes

CO1	**Analyze** running times of algorithms using asymptotic analysis.
CO2	**Identify** the different algorithm paradigms and **explain** when algorithmic design situations call for them and **analyze** their performances.
CO3	**Compare** between **different** data structures and **select** an appropriate data structure for a design situation.
CO4	**Explain** what complexity classes are and relationship among them.

- CO with Assessment Methods

CO	Assessment Method	(%)
-	Attendance	5
-	Assignment	5
-	Class Tests	20
CO1,CO2,CO3	Mid Exam	30
CO2,CO3,CO4	Final Exam	40

CO Assessment – Lab Courses

- Not as simple as theory
- CO assessment and Assessment in course are different
- No need to bring everything in CO assessment
- Variations in assessment
  - **Mid/Final Exam (Quiz)**
  - **Report**
  - **Viva**
  - **Presentation**
  - **Individual/ Group Project**
  - **Project delivery report**
  - **Weekly hardware/Software assignments**

CO Assessment – Lab Courses

POs	Assessment
PO d:Investigation	Open-ended projects
PO e: Modern Tool Usage	Tools taught in lab classes
PO i: Individual and Team work	Group projects
PO j: Communication	Viva, project presentation through slides, posers, written reports

Final Year Design Project - FYDP

- Final Year Design Project or the Capstone project is a key element in outcome- based teaching learning.
  - Extending over a period of one year.
  - Represents a culminating demonstration of the program outcomes at the level of solving complex engineering problems.
  - Based on the knowledge and skills acquired in earlier course work.
  - Should incorporate appropriate engineering standards and multiple realistic constraints.
- Final Year Design Project should address most of the PO's. In fact, this is the primary means to show achievements of a number of PO's, e.g., Investigation (PO4), Engineer and Society (PO6), Environment and Sustainability (PO7), Individual and Teamwork (PO9), Project Management (PO11), Lifelong Learning (PO12)

Final Year Design Project - FYDP

- Learning Activities in the Final Year Design Project should be appropriately planned so that the Project mimics a real life professional engineering task.
- Each activity should be geared towards achieving one or more PO.
- All the activities should be adequately documented.
- It is desirable to involve the industry in the project. Either through assigning a real life practical design problem or though involving experts from the industry in co-supervision and/or evaluation.
- Theses/Projects typically done by 4th year students in our country do not satisfy requirements of Capstone Project

Assessment Rubrics

- Relatively straightforward for theory courses through written exams
- Challenging to assess the following POs, not possible to assess through written exams
  - PO e: Modern Tool Usage
  - PO i: Individual and Team work
  - PO j: Communication
  - PO l: Lifelong learning
- Required to include Lab courses specially the assigned projects
- The rubrics are mainly useful for labs or for theory courses that have project/presentation.
- It will tell the students "What we want" from them in a presentation or project or report writing

Assessment Rubrics

A rubric is an assessment tools that clearly indicates achievement criteria across all the components of any kind of student work, from written to oral to visual. It can be used for marking assignments, class participation, or overall grades.

How to Make a Good Rubric

- Decide what criteria or essential elements must be present in the student's work to ensure that it is high in quality. **(exemplary student work)**
- Decide how many levels of achievement you will include on the rubric and how they will relate to your institution's definition of grades as well as your own grading scheme.
- For each criterion, component, or essential element of quality, describe in detail what the performance at each achievement level looks like.

Performance Indicators	Unacceptable (5.5-0)	Substandard (6- 5.5)	Adequate (8- 7)	Proficient (10-9)

Components:

Performance Indicator/ KPI

Level

Descriptor

Rubric: Lab Report

Rubrics (weight)	Accomplished (5)	Competent (4)	Developing (3)	Beginning (2)	No Answer (0)
Understanding experiment's requirements (10%)	Defined experiment requirements and assume circuit specifications, if any, properly.	Intermediate between developing and accomplished.	Defined experiment requirements and assume circuit specifications, if any, moderately.	Defined experiment requirements and assume circuit specifications, if any, poorly.	No answer provided.
	◉	○	○	○	○
Building Circuit and conducting simulation / experiment (10%)	Conducted experiment properly by building simulation circuit using required specification.	Intermediate between developing & accomplished.	Conducted experiment moderately by building simulation circuit using required specification.	Conducted experiment poorly by building simulation circuit using required specification.	No simulation / experiment performed
	◉	○	○	○	○
Result and analysis (10%)	Analyzed and interpreted the results properly using the converter parameters.	Intermediate between developing and accomplished.	The results are analyzed to some extent according to specified requirements.	The results are analyzed poorly due to incomplete simulation.	No answer provided.
	○	○	◉	○	○
Remarks / Answering Question (10%)	Answered the given questions correctly and describe the remarks properly.	Intermediate between developing and accomplished.	Answered partially the given questions and describe the remarks moderately.	Answered the given questions incorrectly and describe the remarks poorly.	No answer provided.
	○	○	◉	○	○
Sub Total	20		12		
Late submission	- 4				
Total (40%)	28				

Rubric: Open Ended Lab

Rubrics (weight)	Accomplished (5)	Competent (4)	Developing (3)	Beginning (2)	No Answer (0)
Understanding design requirements (5%)	Defined design requirements and assume design specifications properly, if any.	Intermediate between developing and accomplished.	Design requirements and assumptions of design are defined with some weakness.	Design requirements and assumptions are poorly defined.	No answer provided.
	◉	○	○	○	○
Choice of design methodology / solution (5%)	Explain the chosen solution approach properly.	Intermediate between developing and accomplished.	Explain the chosen solution approach moderately.	Explain the chosen solution approach poorly.	No answer provided.
	◉	○	○	○	○
Design verification (5%)	Verified the design properly using appropriate simulation software.	Intermediate between developing and accomplished.	Used appropriate simulation software and verify the design moderately.	Used appropriate simulation software but didn't able to verify the design poorly.	No answer provided.
	○	○	◉	○	○
Result analysis (5%)	Analyzed and interpreted the results properly using the designed parameters.	Intermediate between developing and accomplished.	The results are analyzed to some extent according to defined problem.	The results are analyzed poorly due to incomplete design.	No answer provided.
	○	○	◉	○	○
Sub Total	**10**		**6**		
Total (20%)	**16**				

Rubric: Assignment

Rubrics (weight)	Accomplished (5)	Competent (4)	Developing (3)	Beginning (2)	No Answer (0)
Design requirements (5)	Defined design requirements and assume design specifications (if any) properly.	Intermediate between developing and accomplished.	Design requirements and assumptions of design are moderately (having some weaknesses) defined.	Design requirements and assumptions are poorly defined.	No answer given
	◉	○	○	○	○
Design accomplishment (5)	Accomplished the complete design through proper solution approach.	Intermediate between developing & accomplished.	Accomplish the complete design through proper solution approach but finished with some weaknesses.	Started with proper solution approach but didn't able to complete.	No answer given
	◉	○	○	○	○
Design verification (5)	Verified the design properly using appropriate simulation software.	Intermediate between developing and accomplished.	Used appropriate simulation software and verified the results to some extent.	Used appropriate simulation software but didn't able to verify the design.	No answer given
	◉	○	○	○	○
Result analysis (5)	Analyzed and interpreted the results properly using the designed parameters.	Intermediate between developing and accomplished.	The results are analyzed to some extent according to defined problem.	The results are analyzed poorly due to incomplete design.	No answer given
	○	○	○	◉	○
Addressing complex engineering problems (10)	Performed the design addressing P1 and all possible attributes from P2 to P7 of complex engineering problems correctly.	Intermediate between developing and accomplished.	Performed the design addressing P1 and any one attributes from P2-P7 correctly and other attributes from P2-P7 incorrectly..	Performed design addressing only one (P1) attributes properly and other attributes from P2-P7 incorrectly.	No answer given
	○	○	◉	○	○
Addressing environment & sustainability issues (10)	Addressed, technical, economic, social & environmental issues clearly, properly and professionally.	Intermediate between developing & accomplished.	Environment & sustainability issues (technical, social & economic) are moderately addressed.	Environment & sustainability issues are poorly addressed.	No answer given
	○	○	◉	○	○
Sub Total	15		12	4	
Total (40)	**31**				

Rubric: Project Presentation

Rubrics (weight)	Accomplished (5)	Competent (4)	Developing (3)	Beginning (2)	No Answer (0)
Identifying the problem and appropriate solution (10%)	Demonstrated sound knowledge of literature in the area, and of prior work on the problem providing motivation for seeking a solution.	Intermediate between developing and accomplished	Demonstrated good knowledge of literature in the area, and of prior work on the problem providing motivation for seeking a solution.	Demonstrated poor knowledge of literature in the area, and of prior work on the problem providing motivation for seeking a solution..	No answer provided.
	◉	○	○	○	○
Design the solution using appropriate techniques (10%)	Applied state-of-the art methods / tools to solve the defined problem and has described the methods/tools effectively.	Intermediate between developing and accomplished.	Applied state-of-the art methods / tools to solve the defined problem and has described the methods/tools moderately.	Applied state-of-the art methods / tools to solve the defined problem and has described the methods/tools poorly.	No answer provided.
	◉	○	○	○	○
Analyzing and interpreting the project outcome (10%)	Analyzed and interpreted the results properly using the designed parameters.	Intermediate between developing and accomplished.	The results are analyzed to some extent according to defined problem.	The results are poorly analyzed and interpreted.	No answer provided.
	○	○	○	◉	○
Addressing complex engineering problems (10%)	Demonstrated the project addressing all possible attributes from P1-P7 of complex engineering problems.	Intermediate between developing and accomplished.	Demonstrated the project addressing a few attributes of complex engineering problems.	Demonstrated the project addressing only one attributes of complex engineering problems.	No answer provided.
	○	○	◉	○	○
Oral communications (10%)	Communicated results clearly and professionally in oral form.	Intermediate between developing and accomplished	Results are moderately communicated in oral form.	Results are poorly communicated in oral form.	No answer provided.
	○	○	◉	○	○
Sub Total	**20**		**12**	**4**	
Presentation Total (50%)	**36**				

Rubric:Project Report

Literature review (5)	Demonstrated sound knowledge of literature in the area, and of prior work on the problem providing motivation for seeking a solution.	Intermediate between developing & accomplished	Demonstrated good knowledge of literature in the area, and of prior work on the problem providing motivation for seeking a solution.	Demonstrated poor knowledge of literature in the area, and of prior work on the problem providing motivation for seeking a solution.	No answer provided.
	○	○	◉	○	○
Design the solution using appropriate technique (5)	Applied state-of-the art methods / tools to solve the defined problem and has described the methods/tools effectively.	Intermediate between developing and accomplished.	Applied state-of-the art methods / tools to solve the defined problem and has described the methods/tools moderately.	Applied state-of-the art methods / tools to solve the defined problem and has described the methods/tools poorly.	No answer provided.
	◉	○	○	○	○
Analyzing and interpreting the project outcome (5)	Analyzed and interpreted the results properly using the designed parameters.	Intermediate between developing and accomplished.	The results are moderately analyzed and interpreted.	The results are poorly analyzed and interpreted.	No answer provided.
	◉	○	○	○	○
Addressing complex engineering problems (5)	Performed the design addressing all possible attributes from A1-A7 of complex engineering activities.	Intermediate between developing and accomplished.	Performed the design addressing a few attributes of complex engineering activities.	Performed design addressing only one attributes of complex engineering activities.	No answer provided.
	◉	○	○	○	○
Addressing environment and sustainability issues (5)	Addressed technical, economic, social & environmental issues clearly, properly and professionally.	Intermediate between developing & accomplished.	Environment & sustainability issues (technical, social & economic) are moderately addressed.	Environment & sustainability issues (technical, social & economic) are poorly addressed.	No answer provided.
	○	○	○	◉	○
Formatting (5)	The project report is clearly and properly formatted.	Intermediate	The project report is formatted moderately.	The project report is formatted poorly.	No answer provided.
	○	○	○	○	○
Sub Total	**15**		**6**	**2**	
Report Total (30)	**23**				

Rubric:KPI for Crosscheck

- A professional plagiarism checker will be used to check the similarity index of the submitted report and will be graded according to the following percentage of similarity index. Students will be given 2nd chance to correct their report and marks will be given 50% of the original one. For the 3rd attempt onwards no marks will be given. **However, similarity index of the final hard binding report must be less than 30%.**

KPI: Similarity index	Marks (%)	
	1st submission	Revised submission
<= 30%	100	50
31 – 35%	80	40
36 – 40%	60	30
41 – 50%	40	20
51 – 60%	20	10
> 60%	0	0

Rubric: Project Demonstration

KPI	Marks Allocated	Marks Obtained
Problem identification and proposed solution	10	8
Technical aspect of the project	10	8
Project planning, budgeting & financial management	10	7
Project outcome and its impact	10	7
Project demonstration skill	10	9
Total	50	39
10% of Total	10	7.8

Use of Rubrics

- Developing rubrics interactively with your students
- Develop a different rubric for each assignment
- Be transparent
- Be prepared to revise your rubrics

Rubric for Assessments

- Report
- Viva
- Presentation
- Prototype
- Individual/group project
- Project delivery report
- Weekly assignment
- Log Book

Rubric: Some More Examples

Some More Examples

Rubric: Some More Examples

Rajshahi University of Engineering & Technology
Department of ---------- Engineering
Rubrics for Course Title:
Course No:

Scale criteria of statement	Weight	Outstanding	Excellent	Good	Fair	Unsatisfactory	COs	POs
Problem Statement, Literature Review, Impact of findings to real-life applications	20%	i) Clearly explain the problem statement. ii) Complete & sufficient literature review with detailed references iii) Strong impact of the findings to the real-life applications. Mark: 15	i) Clearly explain the problem statement. ii) Complete & sufficient literature review but not followed correct reference format iii) Strong impact of the findings to the real-life applications. Mark: 14	i) Clearly explain the problem statement. ii) Complete but not sufficient literature review & not followed correct reference format iii) Strong impact of the findings to the real-life applications. Mark: 13	i) Not Clearly explain the problem statement. ii) Complete but not sufficient literature review & not followed correct reference format iii) Clearly mention impact of the findings to the real-life applications. Mark: 10	Missing (0)	CO4	PO12
**Similarity Index	20%	Similarity index <=20% Mark=15	Similarity index: (>=20% to <25%) Mark: 12	Similarity index: (>=25% to <=30%) 1st Revision Mark=10 (Overall <=25%)	Similarity index: (>=30% to <=40%) 1st Revision Mark=08 (Overall <=25%)	Missing (0)	CO1	PO8
Communication	40%	i) Complete, clear, and well-organized report in a prescribed format. ii) Report submission with due time. ii) Effective and Clear PPT prepared. iii) Precise pronunciation and clear voice with steady all the time. iv) Critical insightful. Mark: 30	i) Complete, clear, and well-organized report in a prescribed format. ii) Report submission with due time. ii) Effective and Clear PPT prepared. iii) Precise pronunciation but not clear voice with steady all the time. iv) Less critical insightful. Mark: 25	i) Complete, clear, and well-organized report in a prescribed format ii) Report submission but not due time. ii) Effective and Clear PPT prepared iii) Precise pronunciation but not clear voice with steady all the time. iv) Less critical insightful. Mark: 20	i) Complete, but not clear, and well-organized report in a prescribed format ii) Report submission but not due time. ii) Effective and Clear PPT prepared iii) Weak pronunciation but not clear voice with steady all the time. iv) Less critical insightful. Mark: 15	Missing (0)	CO2	PO10
Project Management	20%	i) Detailed Budget preparation and analysis ii) Cost efficient and Feasible solution. iii) Added project completion time frame. Mark: 15	i) Detailed Budget preparation and analysis ii) Cost efficient and Feasible solution. iii) Not added project completion time frame. Mark: 12	i) Detailed Budget preparation and analysis ii) Not cost efficient and Feasible solution. iii) Not added project completion time. Mark: 10	i) Not mention detailed Budget preparation and analysis ii) Not cost efficient and Feasible solution. iii) Not added project completion time frame. Mark: 8	Missing (0)	CO3	PO11
Total Mark =	75							

**A professional plagiarism checker will be used to check the similarity index of the submitted report and will be graded according to the following percentage of the similarity index. Students will be given a 2nd chance to correct their report and reduced marks will be given to the original one. For the 3rd attempt onwards no marks will be given. However, the similarity index of the final hard binding report must be less than 25%.

Rubric: Some More Examples

Assessment Rubric for ---------- Sessional

Criteria	Excellent (5) (100%)	Good (80%)	Satisfactory (70%)	Needs Improvement (50%)	Inadequate (Fail)
Understanding of Embedded Systems Concepts **(07)**	Demonstrates thorough understanding of embedded systems concepts, theories, and principles. Able to explain complex concepts clearly. **Mark: 07**	Shows a solid understanding of most embedded systems concepts. Can explain key principles adequately. **Mark: 06**	Demonstrates a basic understanding of embedded systems concepts but lacks depth or clarity in explanations. **Mark: 05**	Displays limited understanding of embedded systems concepts. Struggles to explain fundamental principles. **Mark: 04**	Shows little to no understanding of embedded systems concepts. Unable to explain basic principles. **Mark: 00**
Technical Skills (Programming) & Problem-Solving Ability **(15)**	Proficiently applies a wide range of technical skills in embedded systems design, programming, and troubleshooting. Produces work of high quality with minimal errors. **Mark: 15**	Demonstrates competence in applying technical skills in most aspects of embedded systems work. Occasionally makes minor errors. **Mark: 12**	Shows basic proficiency in applying technical skills but lacks consistency or precision. Makes noticeable errors in implementation. **Mark: 10**	Demonstrates limited technical skills in embedded systems work. Struggles to complete tasks accurately and effectively. **Mark: 8**	Lacks essential technical skills for embedded systems works. Unable to complete tasks independently. **Mark: 00**
Project Execution and Completion **(10)**	Executes projects with exceptional organization, planning, and attention to detail. Completes tasks within specified timelines and meets or exceeds project objectives. **Mark: 10**	Demonstrates good organization and planning in project execution. Generally, completes tasks on time and meets project objectives satisfactorily. **Mark: 08**	Completes projects with basic organization and planning but may encounter delays or minor deviations from project objectives. **Mark: 07**	Shows limited organization and planning in project execution. Often misses deadlines or fails to meet project objectives adequately. **Mark: 05**	Demonstrates poor organization and planning in project execution. Frequently fails to meet deadlines or project objectives. **Mark: 00**
Documentation and Reporting **(10)**	Provides comprehensive and well-organized documentation of project work, including design rationale, implementation details, and results analysis. Reports are clear, concise, and effectively communicate key findings. **Mark: 10**	Provides adequate documentation of project work, covering most essential aspects of design, implementation, and results. Reports are generally clear and understandable **Mark: 08**	Provides basic documentation of project work but may lack detail or organization. Reports may be somewhat unclear or incomplete. **Mark: 07**	Provides minimal documentation of project work, lacking detail or coherence. Reports are difficult to follow and understand. **Mark: 05**	Fails to provide sufficient documentation of project work. Reports are unclear or absent. **Mark: 00**
Presentation, Collaboration and Communication **(05)**	Actively contributes to team projects, communicates effectively with team members, and demonstrates strong collaboration skills. Resolves conflicts constructively and fosters a positive team environment. **Mark: 05**	Generally contributes to team projects and communicates adequately with team members. Occasionally encounters difficulties in collaboration but resolves issues effectively. **Mark: 04**	Participates in team projects but may require reminders to communicate effectively or contribute consistently. Occasionally struggles to resolve conflicts within the team. **Mark: 03**	Participates minimally in team projects and communicates inconsistently with team members. Often contributes to conflicts within the team. **Mark: 02**	Fails to contribute effectively to team projects and communicates poorly with team members. Frequently disrupts team dynamics. **Mark: 00**

Rubric: Some More Examples

Heaven's Light is Our Guide

Rajshahi University of Engineering & Technology

Department of ----------Engineering

4th Year Even Semester Examination 2022, Session: 2018-2019

Project/Thesis Supervisor and External Marks (70)

S.N.	Roll	Supervisor Marks											External Marks (20)	Total Marks (70)
		CO1	CO2	CO3	CO4	CO5	CO6	CO7	CO8	CO10	CO11			
		PO2- Problem analysis (05)	PO3- Design/development of solutions (08)	PO4: Investigations (04)	PO5- Modern tool usage (05)	PO6- The engineer and society (04)	PO7- Environment and sustainability (04)	PO8- Ethics (04)	PO9- Individual and team work (04)	PO11- Project management and finance (04)	PO12- Life-long learning (08)	**Total (50)**		
1														
2														
3														
4														
5														
6														
7														
8														

Rubric: Some More Examples

Heaven's Light is Our Guide

Rajshahi University of Engineering & Technology

Department of ----------Engineering

4th Year Even Semester Examination 2022, Session: 2018-2019

Project/Thesis VIVA Marks (30)

S.N.	Roll	Identifying the problem and appropriate solution (05)	Design the solution using appropriate techniques (05)	Analyzing and interpreting the project/Thesis outcome (05)	Addressing complex engineering problems (05)	Oral communications (10)	Total (30)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Rubrics: Task

Please download a rubric of your choice from website of a reputed university and share with other participants.

You have 10 minutes…… to find and customize.

Acknowledgment

Thank You Very Much for Your Patience