

Assessment of Higher Order Thinking Skills

Programme(s) in which it is offered: Ph.D. in Education

Course Category: Elective	Schedule of Offering:
Course Credit Structure: 4	Course Code:
Total Number of Hours: 4	Contact Hours Per Week:
Lecture: 1, 1	Tutorial: 3, 3
Practical: 0, 0	Medium of Instruction: English
Date of Revision:	Skill Focus:
Short Name of the Course: Assessment of HOTS	Course Stream (Only for Minor Courses):
Grading Method: Pass/Fail	Repeatable: Credit
Course Level: Beginner	

Course Description

This Course is an elective course offered to PhD students of Education. The course discusses principles of assessing higher order thinking skills, strategies for assessing various HOTS, and concerns related to assessment of HOTS in a regular classroom.

Course Introduction

The course is an ideal choice for researchers working on assessment of HOTS. The course discusses in detail, strategies for assessing higher cognitive skills such as analysis, evaluation and creation, assessing judgement, assessing logic and reasoning, assessing problem solving, and assessing creativity. The course would be highly helpful in planning and constructing assessment tools required for their research studies.

Prerequisites and other constraints

There are no prerequisites for this course.

Suggested Reading:

1. Wyatt-Smith, Claire; Cumming, Joy (Eds.) (2009). Educational Assessment in the 21st Century. New Delhi: Springer.
2. Mohan, Radha (2016). Measurement, evaluation and assessment in education. New Delhi: Prentice Hall, Eastern Economy Edition.

3. Brookhart, Susan M (2010). How to assess higher-order thinking skills in your classroom. Virginia. ASCD Publications.
4. Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Complete ed.). New York: Longman.
5. Andrade, H. L., Du, Y., & Wang, X. (2008). Putting rubrics to the test: The effect of a model, criteria generation, and rubric-referenced self-assessment on elementary students' writing. *Educational Measurement: Issues and Practice*, 27(2), 3–13.
6. Iglewicz and Stoye (1973). *An Introduction to Mathematical Reasoning*. New York, McMillan company.
7. Bransford, J. D., & Stein, B. S. (1984). *The IDEAL problem solver*. New York: W. H. Freeman.
8. Polya, G. (1963). *How to solve it*, Princeton, NJ: Princeton University Press.
9. Polya, G. (1981). *Mathematical discovery: On understanding, learning and teaching problem solving*. New York: John Wiley and Sons.
10. Norris, S. P., & Ennis, R. H. (1989). *Evaluating critical thinking*. Pacific Grove, CA: Critical Thinking Press & Software.
11. Azzam, A. (2009). Why creativity now? A conversation with Sir Ken Robinson. *Educational Leadership*, 67(1), 22–26.

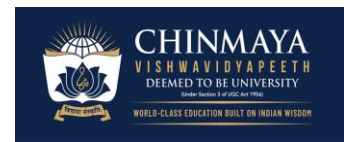
Evaluation Pattern

Evaluation Matrix

	Component Type	Weightage Percentage	Total Marks	Tentative Dates
Continuous Internal Assessment (CIA) Components*	Presentations	20%	30	Weekly
	Assignment	10%	20	End of the semester
	CIA Marks	30%	50	
ESE		70%	100	End of the semester

* The assignments involved in CIA will be subject to plagiarism checks. A submission with unexplained similarities exceeding 30% for Undergraduate courses, 20% for Postgraduate courses and 10% for PhD courses will be reverted for resubmission. The final submission is subject to score penalization as defined by the course instructor at the start of the

Version No:
Approval Date:



course, with a clear communication of the same to all the registered candidates.

Module Sessions

Module 1: Assessment, Evaluation and Measurement (10 Hours)

Assessment and Evaluation: Meaning, purpose of assessment (improving learning and teaching); purpose of evaluation (placement, diagnosis, promotion, certification, providing feedback); Interrelationship between assessment and evaluation; Classification of Assessment based on Purpose (Placement, Formative, Diagnostic, and Summative), Scope (Teacher-made, Standardized), Attributes Measured (Achievement, Attitude, Aptitude etc.), Nature of Information gathered (Qualitative, Quantitative), Mode of Response (Oral, Written and Performance), Nature of Interpretation (Norm-referenced and Criterion referenced), and the Context (Internal, External); Objective based evaluation - Assessment and the instructional goals.; Identifying instructional goals, assessing the learners' needs, providing relevant instruction, assessing the learning outcomes and using the results; Meaning, importance, and purpose.

Reading:

12. Wyatt-Smith, Claire; Cumming, Joy (Eds.) (2009). Educational Assessment in the 21st Century. New Delhi: Springer.
13. Mohan, Radha (2016). Measurement, evaluation and assessment in education. New Delhi: Prentice Hall, Eastern Economy Edition.

Module 2: General Principles for Assessing Higher-Order Thinking (7 Hours)

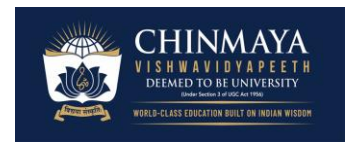
Basic Assessment Principles; Principles for Assessing Higher-Order Thinking, Strategies for Giving Feedback or Scoring Tasks That Assess Higher-Order Thinking: Formative Assessment of Higher-Order Thinking; Summative Assessment of Higher-Order Thinking; Performance Assessments.

Reading:

1. Brookhart, Susan M (2010). How to assess higher-order thinking skills in your classroom. Virginia. ASCD Publications.
2. Wyatt-Smith, Claire; Cumming, Joy (Eds.) (2009). Educational Assessment in the 21st Century. New Delhi: Springer.

Module 3: Assessing Analysis, Evaluation, and Creation (10 Hours)

Version No:
Approval Date:



Cognitive Taxonomies; **Assessing Analysis:** Focus on a Question or Main Idea, Analyse Arguments or Theses, Compare and Contrast; **Assessing Evaluation:** Criteria for feedback or rubrics; **Assessing Creation;** Formative and Summative Uses of Results; Student Self-Assessment and Use of Results as a Special Case.

Reading:

1. Brookhart, Susan M. (2010). How to assess higher-order thinking skills in your classroom. Virginia. ASCD Publications.
2. Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Complete ed.). New York: Longman.
3. Andrade, H. L., Du, Y., & Wang, X. (2008). Putting rubrics to the test: The effect of a model, criteria generation, and rubric-referenced self-assessment on elementary students' writing. Educational Measurement: Issues and Practice, 27(2), 3–13.

Module 4: Assessing Logic and Reasoning (10 Hours)

Deduction: Identifying assumptions and premises, Reasoning to a conclusion; Induction: Reasoning from data, examples, and other information, Reasoning by analogy; General Reasoning Skills: Logical Errors; **Assessing Logic and Reasoning:** Make or Evaluate a Deductive Conclusion, Make or Evaluate a Inductive Conclusion - Examples of reasoning by induction, Example of reasoning by analogy; Formative and Summative Uses of Results.

Reading:

1. Brookhart, Susan M (2010). How to assess higher-order thinking skills in your classroom. Virginia. ASCD Publications.
2. Iglewicz and Stoye (1973). An Introduction to Mathematical Reasoning. New York, McMillan company.

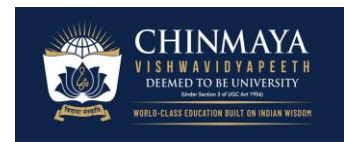
Module 5: Assessing Judgment and Problem Solving (12 Hours)

What Is Good Judgment? Evaluate the Credibility of a Source; **Assessing Judgement:** Identify Implicit Assumptions, Identify Rhetorical and Persuasive Strategies; Formative and Summative Uses of Results.

What Is Problem Solving? Different Kinds of Problems - Structured Versus Unstructured

Version No:

Approval Date:



Problems, “Goal-Free” Problems. **Assessing Problem Solving:** Identify a Problem to Be Solved, Identify Irrelevancies, Describe and Evaluate Multiple Strategies; Model a Problem: Identify Obstacles or Additional Information for Solving a Problem or Scenario, Reason with Data, Use Analogies, Solve a Problem Backward. Formative and Summative Uses of Results.

Reading:

1. Brookhart, Susan M (2010). How to assess higher-order thinking skills in your classroom. Virginia. ASCD Publications.
2. Bransford, J. D., & Stein, B. S. (1984). The IDEAL problem solver. New York: W. H. Freeman.
3. Polya, G. (1963). How to solve it, Princeton, NJ: Princeton University Press.
4. Polya, G. (1981). Mathematical discovery: On understanding, learning and teaching problem solving. New York: John Wiley and Sons.

Module 6: Assessing Creativity and Creative Thinking (11 Hours)

Creative Thinking as Generative but Not Evaluative – Reason, Productivity, Reflectivity, Evaluation. Creative Thinking as Both Generative and Evaluative; Attention to Both Generating and Evaluating; Creative Problem Solving; Promoting Creativity in Classroom; **Assessing Creativity:** Examples from various disciplines; Revising Grading Schemes and Rubrics That Trivialize Creativity: Missing the Point with “Creativity Points”, Mis-Specifying Creativity in a Rubric; Formative and Summative Uses of Results.

Reading:

1. Brookhart, Susan M (2010). How to assess higher-order thinking skills in your classroom. Virginia. ASCD Publications.
2. Norris, S. P., & Ennis, R. H. (1989). Evaluating critical thinking. Pacific Grove, CA: Critical Thinking Press & Software.
3. Azzam, A. (2009). Why creativity now? A conversation with Sir Ken Robinson. Educational Leadership, 67(1), 22–26.