MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

TANZANIA INSTITUTE OF EDUCATION

THREE YEAR DIPLOMA IN TEACHER EDUCATION SYLLABUS FOR EDUCATIONAL RESEARCH, MEASUREMENT AND EVALUATION SUBJECT

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DECLARATION

The Syllabus for Education Subject is approved for use in Tanzanian Teachers' Colleges for three Year Diploma in Teacher Education; Science and Business Studies Programme.

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1.0 Introduction

This syllabus is divided into two parts: The preliminary part which consist of introduction, aims and objectives of education in Tanzania, objectives of teacher education, subject goals and objectives, subject competencies and the assessment methods. The second consists of the content area which is expressed in topics. There are three major topics in this syllabus which include: Educational Measurement, Educational Assessment and Evaluation and Educational Research. Educational Research, Measurement and Evaluation is one of the professional subjects for diploma course in teachers education. This syllabus will be implemented within the third year of the programme.

The syllabus will equip student teacher with research and assessment skills necessary for identification of educational problems and how to solve them as well as monitoring student progress. Also, it emphasizes:

a) skills and competencies to be developed in student teachers;
b) incorporation of cross-cutting issues; and
c) use of participatory teaching methods, as well as use of a variety of assessment procedures in solving educational problems.

This syllabus prescribes some proposed teaching and learning strategies, resources and assessment procedures. The tutor and student teachers are free to use any other strategies and resources approaches depending on the nature of the topics and teaching and learning context. The syllabus is arranged in a linear form so as to give the tutor enough freedom to be creative and innovative in planning and executing classroom instruction.

1.1 Aims and objectives of education in Tanzania

The objectives of educational research, measurement and evaluation subject syllabus are drawn from the general aims and objectives of education in Tanzania, which are to:

a) guide and promote the development and improvement of the personalities of the citizens of Tanzania, as well as their human resources and effective utilization of their resources in bringing about individual and national development;

b) promote the acquisition and appreciation of culture, customs and traditions of the people of Tanzania;
c) promote the acquisition and appropriate use of literary, social, scientific, vocational, technological, professional and other forms of knowledge, skills and understanding for the development and improvement of individual learner and society;
d) develop and promote self-confidence and an inquiry mind, an understanding and respect for human dignity and human rights and readiness to work hard for personal self-advancement and national improvement;
e) enable and expand the scope of acquisition, improvement and upgrading of mental, practical productive and other life skills needed to meet the changing needs of industry and the economy;
f) enable every citizen to understand the fundamentals of the national constitution as well as enshrined human and civil rights, obligation and responsibilities;
g) promote the love of work, self and wage employment and improve performance in the production and service sectors;
h) inculcate principles of national ethics and integrity, national and international cooperation, peace and justice through the study, understanding and adherence to the provision of the National Constitution and International basic charters; and
i) enable a rational use, management and conservation of our environment.

1.2 Objectives of teacher education

The objectives of educational research, measurement and evaluation subject syllabus is also drawn from the general aims and objectives of teacher education in Tanzania, which are to:

a) facilitate student teachers to acquire theories and principles of education psychology, guidance and counselling;
b) enable student teachers to develop pedagogical skills, creativity and innovation;
c) promote an understanding of the foundation of the school curriculum;
d) sharpen the student teachers' knowledge, skills and attitude hence competencies in the subjects taught in schools;

e) develop in the student teachers skills and techniques of assessment, evaluation and action research;
f) enable student teachers to acquire the organizational, managerial and leadership skills needed in the running of schools; and
g) promote a gender balance in teacher education.

1.3 Subject goals

This subject intends to:

a) develop the student teachers with knowledge and skills of conducting research, assessment and evaluation of teaching and leaning;
b) empower student teachers to become competent in diagnosing students' learning problems and planning for interventions; and
c) acquire and use basic skills in educational research, measurement and evaluation.

1.4 Subject objectives

This subject aims at enabling the student teacher to:

a) develop action research skills in improving the teaching and learning process;
b) acquire assessment skills for improving teaching and learning process;
c) develop interpersonal skills in establishing mutual supportive linkages between school and community; and
d) use basic skills in measurements, assessment and evaluation in reporting students achievement in learning.

1.5 Subject competencies

On successful completion of this course, the student teacher will have ability to:

a) carry out action research and share the findings with others;
b) apply research findings to improve teaching and learning process and solve educational problems;
c) use assessment skills and tools for improving teaching and learning process;

d) apply interpersonal skills in establishing mutual supportive linkage between the school and the community in solving problems in the teaching and learning process; and
e) develop reflective practice in teaching and leaning process.

1.6 Organization of the syllabus

The syllabus has been arranged into main topics, sub-topics and specific objectives to be achieved, estimated time, teaching and learning activities, teaching and learning resources, and assessment activities/tools.

Topic/sub-topic

This part describes a matter dealt within a subject.

Specific objectives

This includes statements that describe results in terms of knowledge, attitude, skill, aspiration, and behavior that student teachers are expected to achieve and perform after attaining the programme.

Teaching and learning activities

The syllabus proposes some teaching and learning activities for each sub-topic. The tutors, however, should use their knowledge of pedagogy to teach the courses more effectively.

Teaching and learning resources

This part describes teaching and learning resources to be used during teaching and learning processes. The tutor of the teacher education professional courses is expected to constantly seek information from various sources in order to master the teaching of the subject. A list of reference materials may be periodically recommended by the Ministry of Education, Science and Technology (MoEST).

Assessment activities/tools

This part describes assessment activities/tools to be used in assessing learning. Assessment procedures shall include formative assessment, (i.e., classroom/ college based assessment practices) and summative assessment (i.e., the final national examination). Part of the formative assessment marks will constitute continuous assessment marks and will carry 50% of the final marks in the summative assessment. The Final Examination by NECTA will carry 50% of the final marks. The table below shows the distribution of the assessment marks.

Table 1: Assessment and Marks Distribution

Types of Assessment	Assessment Measure	Frequency		Weight %
		Third Year		
		Term I	Term II	
Formative Assessment	Tests	2	2	10
	Individual Assignment	1	1	10
	Portfolios	1	1	5
	Research Project	-	-	10
	Seminar Presentation	1	1	5
	Terminal Examination	1	1	10
Summative Assessment	National Examination	-	-	50
Total				100

Table 2: Course content and time frame

S/N	Topic to be covered	Third Year	
		Term I	Term II
1	Educational Measurement	√	
2	Educational Assessment & Evaluation	√	√
3	Educational Research		√

2.0 Educational Measurement

This topic exposes student teachers to the concept of measurement and educational measurement, scales of measurement, types of educational measurement and the importance of educational measurement in teaching and learning.

2.1 The concepts of measurement and educational measurement

Estimated Time: 1 Hour

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concepts of measurement and educational measurement;
b) explain the importance of measurement and educational measurement in teaching and learning processes;and
c) analyze the uses of measurement and educational measurement in teaching and learning.

Teaching and learning activities/techniques

a) Brainstorm on the concepts of measurement and educational measurement
b) Organize group discussions and then gallery walk on the importance of measurement and educational measurement
c) Use questions words (i.e., what, why and how) to engage student teachers in analyzing the purposes and uses of measurement and educational measurement in teaching and learning
d) Organize group discussions and presentations on the uses of measurement and educational measurement in teaching and learning

Teaching and learning resources

a) Visual, audio, audio-visual, textual and internet materials on the concept of educational measurement
b) Journal materials on measurement and educational measurement

Assessment activities/tools

a) Individual/group assignments on the concepts of measurement and educational measurement
b) Written assignments on the importance of measurement and educational measurement
c) Oral questions to assess the importance of measurement and educational measurement in teaching and learning
d) Questions and answers to assess student teachers' understanding on the uses of measurement and educational measurement in teaching and learning
e) Observation checklist for observing and monitoring group discussions and presentations

2.2 Types of educational measurement

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the types of educational measurement;
b) distinguish types of educational measurement;
c) analyze the application of the different types of educational measurement in the teaching and learning processes;
d) analyze the characteristics of "norm-referenced and criterion-referenced measurement; and
e) evaluate "norm-referenced" and "criterion-referenced" measurements in educational setting.

Teaching and learning activities/ techniques

a) Organize punctuated lecture on the types of educational measurement
b) Use think-pair-share method to facilitate a discussion on the characteristics of norm-referenced and criterion-referenced measurements
c) Organize a small group discussions and a gallery walk on the roles and importance of norm-referenced and criterion-referenced measurements in educational settings

d) Use strategic questions to analyse the applications of the different types of educational measurement in the teaching and learning process.

Teaching and learning resources

a) Visual, audio, audio-visual, textual and internet materials on the types of educational measurement.
b) Charts showing the characteristics of norm-referenced and criterion-referenced measurements.

Assessment activities/tools

a) Individual/group assignments to distinguish between norm-referenced and criterion-referenced measurements.
b) Written exercises on the roles and importance of educational measurement.
c) Oral questions to assess student teachers' understandings of the applications of the different types of educational measurement in the teaching and learning processes.
d) Small group assignments focused on analyzing the difference between norm-referenced and criterion-referenced measurements.
e) Portifolio to assess the individual professional growth and reflections on activity-based tasks.

2.3 Scales of measurement

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, student teacher should be able to:

a) analyze the different types of scales of measurement (nominal, ordinal, interval and ratio);
b) explain the uses of measurements scales; and
c) use scales of measurement in measuring student's achievement.

Teaching and learning activities/ techniques

a) Organize punctuated lectures focused on analyzing the scales of measurement.
b) Brainstorm on the types of scales of measurement.

c) Organize group discussions focused on analyzing the differences among nominal, ordinal, interval and ratio scale.
d) Organize library searches and class presentations on the use of scales of measurement in measuring students' achievement.

Teaching and learning resources

a) Tape measures, thermometers, meter, ruler and different types of scales
b) Constructed tests showing different scale measurements such as nominal, ordinal, interval and ratio scales

Assessment activities/tools

a) Observation checklist for observing and assessing group discussions and presentations.
b) Individual/group assignments for carrying out a library search on the use of scales of measurement in measuring student's achievement.
c) Written works focused on analyzing the differences among nominal, ordinal, interval and ratio scale.

2.4 Statistical measurements

This topic will enhance teachers' abilities in using statistical measurement in interpreting, presenting and analyzing learners' scores. Upon accomplishment of this topic, student teachers will develop competencies in using and applying educational statistical measurement in the teaching and learning processes. Thus, this topic will include the following sub-topics; methods of data/test score presentation, measures of central tendency and dispersion, test standardization measures, and item analysis techniques.

2.4.1 Statistical data presentation methods

Estimated Time: 8 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) identify statistical methods of data presentation (i.e., graphical methods and frequencies);

b) use different statistical methods of data presentation in presenting data (i.e., test score);
c) analyze methods of processing test scores (i.e., ranking of test scores); and
d) construct various graphics and statistical methods of data presentation (i.e., cumulative frequency curve, bar charts, histogram, line graphs etc.).

Teaching and learning activities/techniques

a) Use brainstorming questions to identify statistical methods of data presentations (i.e., use of graphics and frequencies methods)
b) Organize student teachers in pair to analyze data using different statistical methods of data presentation
c) Instruct student teachers to analyze and present data in groups using different statistical methods of data presentation
d) Instruct the student teachers in groups to apply various methods of data presentation (i.e., cumulative frequency table/curve, bar charts, histogram, frequency tables, line graphs etc.) to analyse test scores
e) Organize small group discussions focused on ranking test scores and interpret single and grouped data frequency tables
f) Organize a group discussions and gallery walks to draw and interpret statistical data presented in graphs and frequency tables

Teaching resources

a) Samples of statistical data presented in frequency distribution and graphical representation tables.
b) Internet materials on different methods of data presentations.
c) Graph papers and manila sheets for constructing frequency distribution of tables and graphical representation tables.

Assessment activities/tools

a) Use of oral questions or group assignments to assess student teachers' understanding of statistical methods of data presentations
b) Written assignment to assess students teachers' ability to present data using statistical methods of data presentations
c) Observation checklist to assess students teachers' ability to draw graphical representation of data and frequency distribution tables

2.4.2 Measures of central tendency and dispersion

Estimated Time: 6 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) compute the measures of central tendency (mean, median & mode) use measures of central tendency (i.e., mean, median and mode) to interpret test scores;
b) compute the measures of dispersion (range, variance, standard deviation & percentile)
c) use measures of dispersion (range, variance, standard deviation and percentiles) to interpret student's scores from a given test.

Teaching and learning activities/techniques

a) Use oral of questions in describing measures of variability (i.e., central tendency and dispersion)
b) Use think pair share technique to engage student teachers in computing and using measures of central tendency (mean, median and mode) in interpreting test scores
c) Organize group works to compute and use measures of dispersion (range,variance, standard deviation and percentiles) to interpret test scores
d) Prepare group activities to draw tables that show measures of variability (central tendency and dispersion)

Teaching and learning resources

Reference books, module and internet materials on measures of variability (central tendency and dispersion)

Assessment activities

a) Question and answers to assess student teachers' knowledge and skills in using measures of variability
b) Written assignments to assess student teachers' ability to compute measure of variability
c) Observation checklist for observing and monitoring group works and presentations

2.4.3 Test standardization measures

This topic introduces the student teachers to various test standardization measures as well as the validity and reliability measures. Upon the completion of this sub-topic student teachers will develop skills on measures of test standardization, such as in determining the validity and reliability of test scores.

2.5 Test validity

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, student teachers should be able to:

a) analyze the concept of test validity;
b) describe the characteristics of a valid test;
c) identify factors affecting test validity; and
d) observe the measures of validity of test items.

Teaching learning activities/ techniques

a) Organize punctuated lecture focused on analyzing the concept of test validity
b) Organize group discussions to discuss different types of test validity
c) Use questions words (i.e., why and how questions) to engage student teachers in identifying factors affecting test validity
d) Require groups or individual student teachers to analyze test items in terms of their validity
e) Use brainstorming to engage student teachers to describe the characteristics of a valid test

Teaching and learning resources

a) Written texts and online materials on test validity
b) Sample of test items from various subjects

Assessment activities/ tools

a) Written assignments to describe the factors affecting test validity
b) Use questions and answer to assess student teachers' understanding of the types of test vadility

c) Observation checklist for observing and analyzing student teachers' ability to analyze test items in terms of their validity
d) Organize group assignments to identify factors affecting test validity
e) Use activity based assignment focused on analyzing test items in terms of their validity

2.6 Test reliability

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concept of "test reliability";
b) describe the characteristics of a reliable test;
c) explain procedures for finding test reliability;
d) analyze factors affecting test reliability; and
e) construct reliable test items.

Teaching and learning activities/ techniques

a) Organize punctuated lectures focused on analyzing of concept of test reliability
b) Organise group discussion focused on describing the characteristics of a reliable test
c) Organize think pair discussions to explore the procedures for identifying test reliability
d) Through brainstorming to analyze factors affecting test reliability

Teaching and learning resources

a) Sample of tests items from various subjects
b) Library search, textual and online materials on test reliability

Assessment activities/tools

a) Written assignments (i.e., quizzes, tests and terminal examinations) to assess student teachers knowledge on the characteristics of a reliable test and factors affecting test reliability

b) Observation checklist for assessing group work on the procedures for identifying test reliability
c) Guided group/individual assignments to prepare a reliable test item
d) Questions and answers to assess student teachers' knowledge of the factors affecting test reliability

2.7 Measures for standardization of test scores

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the technique for standardizing test/examination scores;
b) draw normal and skewed curves;
c) interpret normal and skewed curves; and
d) calculate Z-scores and T-scores.

Teaching and learning activities/ techniques

a) Organize group discussions and presentations to analyze the techniques of standardizing test/examination scores
b) Prepare activities to develop skills in drawing normal and skewed curves
c) Organize punctuated lecture on calculating standardized scores
d) Organize group discussions to calculate Z-scores and T-scores
e) Organize classroom discussions on the skills to interpret data presented on normal and skewed curves

Teaching and learning resources

a) Examination papers, reference books and online materials on the interpretation of test scores

Assessment activities/tools

a) Individual assignment to draw and interpret curves and calculating Z-score and T-score
b) Written assignments to calculate standardized scores
c) Observation checklist for observing the correctness of drawn and interpreted curves

d) Written assignments to draw normal and skewed curves

2.8 Item analysis

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concept of item analysis;
b) compute the difficulty index of test items;
c) compute the discrimination power index of test items;
d) analyze test item scores; and
e) interpret the test items scores.

Teaching learning activities/techniques

a) Use questions and answers to conceptualize the meaning and importance the of item analysis
b) Prepare group tasks for analyzing test items
c) Organize group discussions to identify the procedure for conducting item analysis
d) Organize a group discussion to calculate difficult index, discrimination power and discriminating index of test items

Teaching and learning resources

a) Past examination papers and tests
b) Reference books and internet materials on test item analysis and interpretation

Assessment activities/tools

a) Written assignments (i.e., test, quizzes and terminal examinations) to analyze test/examinations items
b) Group assignments to compute difficulty index, discrimination power, and discriminating index of text items
c) Group task to interprete item analysis
d) Observation checklist for observing student teachers' ability to compute difficulty index, discrimination power, and discriminating index of test items and conduct item analysis

3.0 Educational Assessment and Evaluation

This topic enhances the student teachers' understanding of the basic knowledge about assessment and evaluation of learning. The topic is designed to expose student teachers on the instruments and techniques for using various tools and methods of assessment and evaluation.

3.1 Conceptualizing educational assessment

Estimated Time: 6 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concepts of assessment and educational assessment;
b) identify various type of educational assessment;
c) analyze different types of educational assessment; and
d) describe different assessment techniques and their implications on teaching and learning processes.

Teaching and learning activities/techniques

a) Through individual questions to analyze the concepts of assessment and educational assessment
b) Organize group discussion to identify and analyze types of educational assessment (i.e., diagnostic, formative, summative and assessment for learning)
c) Organize small group discussions and plenary presentation describing assessment techniques per each type of assessment
d) Through question words (i.e., what, why and how question) to engage students in critical analysis of assessment techniques and its implication on teaching and learning processes

Teaching and learning resources

Reference books, and internet materials on educational assessment and evaluation

Assessment activities/tools

a) Written reports to analyze assessment types and assessment techniques
b) Brainstorming to assess student teachers' understanding of the assessment techniques per each type of assessment
c) Written assignments (i.e., tests, assignments and terminal examinations) on the types of educational assessment

3.2 Conceptualizing educational evaluation

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concepts of evaluation and educational evaluation;
b) identify and analyze the types of educational evaluation;
c) describe evaluation procedures and techniques; and
d) analyze the importance of evaluation in education and schools.

Teaching and learning activities/techniques

a) Use think-pair-share technique to analyze concepts of evaluation and educational evaluation
b) Prepare group discussions and presentations on analyzing the types of educational evaluation
c) Organize small group discussions on describing evaluation procedures and techniques
d) Use brainstorming questions on analyzing the importance of evaluation in education and schools

Teaching and learning resources

a) Books, library and online materials on educational assessment and evaluation

Assessment activities/tools

a) Written assignments to analyze the concepts of evaluation and educational evaluation

b) Observation checklist for observing and monitoring group discussions and presentations.
c) Questions and answers to assess student teachers' understanding on the importance of evaluation in education setting.
d) Activity based assignment to conduct a mini evaluation study and write an evaluation report.

3.3 Tools for assessing learning

Estimated Time: 2 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze various assessment tools; and
b) explain how each of the assessment tool is used in assessing learning.

Teaching and learning activities/techniques

a) Organize a group discussion to describe tools for assessing learning
b) Organize small group discussions and plenary presentations to discuss how various tools of assessment (i.e., test, examination, portfolio, interview, questionnaire and observation) can be used for assessing learning
c) Organize activity based assignment for student teachers to prepare the various assessment tools used in assessing learning

Teaching and learning resources

a) Past tests and examinations papers
b) Textual and online materials on assessment tools

Assessment activities/tools

a) Group assignments for the student teachers to construct a sample of assessment tools (i.e., tests, examinations, portfolio, interviews, questionnaires and observation) used for assessing learning
b) Prepare small group assignments to prepare various assessment tools used in assessing learning

3.4 Categories of tests items

Estimated Time: 2 Hours

Specific objectives

By the end of this sub-topic, student teachers should be able to:

a) identify categories of tests items used in assessing students' learning;
b) describe various type of test items;
c) distinguish the different types of tests items; and
d) analyze the strengths and weaknesses of each type of tests items.

Teaching and learning activities/techniques

a) Through questions and answer to describe the major categories of the test items (i.e. objective and subjective)
b) Organize a group discussion to identify types of test items under the category objective test item (i.e. multiple choice items, filling in the gap, true/false yes/no, matching item test etc.)
c) Organize a group discussion to identify types of test items under the category of subjective tests (i.e. essay items, short answer question)
d) Organize small group discussions and plenary presentations to analyze the strength and weakness of each type of test item in assessing learning

Teaching and learning resources

a) Past papers on tests and examinations items
b) Reference books and internet materials on assessment tools

Assessment activities/tools

a) Written reports for assessing the student teachers' skills in categorizing assessment tools used to assess learning
b) Activity based assignment for assessing student teachers' skills to construct test items for each category of test items
c) Observation checklist for observing and monitoring group discussions and presentations on analysis of the strength and weakness of each type of test

3.5 Planning a test

Estimated Time: 2 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) explain the importance of planning for a test;
b) identify steps to be followed when planning for a test; and
c) construct a table of specifications.

Teaching and learning activities/techniques

a) Using question and answer to explain the importance of planning a test
b) Organize group discussions to describe steps to be followed when planning for a test
c) Plan small groups and plenary sessions to discuss the importance of preparing table of specification
d) Organize group discussions and presentations to construct the table of specification and analyze its application in the test construction

Teaching and learning resources

a) Textual and internet materials on test construction
b) Calculators
c) Test scores
d) Sample of past papers used to assess students' learning

Assessment activities/tools

a) Individual assignment for explaining the importance of planning for a test
b) Written works/assignments for assessing student teachers' skills in explaining the importance of preparing table of specification in planning a test
c) Group assignment for assessing student teachers' skills to construct a table of specification and analyse its use in constructing test items
d) Observation checklist for recording and monitoring group discussions and presentations

3.6 Construction of test items

Estimated Time: 8 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) construct different types of test items;
b) prepare a marking scheme;
c) construct test items using test construction techniques (i.e., using a table of specification); and
d) analyze approaches for test item moderations.

Teaching learning activities/techniques

a) Organize small group discussions and presentations to construct different types of test items and preparing marking schemes
b) Prepare group works and presentations on constructing test items using tables of specification
c) Organize group discussions to discuss procedures and approaches for moderating test items

Teaching and learning resources

a) Samples of constructed tests and marking schemes
b) Textual and internet materials on approaches for constructing test items

Assessment activities/tools

a) Group assignment to construct different types of test items
b) Individual assignment to prepare a marking scheme
c) Observation checklist for observing activities on construction of test items

3.7 Test administration, scoring and recording

Estimated Time: 6 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze different strategies that are necessary for test administration;
b) distinguish between objective scoring and subjective scoring;
c) describe merits and demerits of objective scoring and subjective scoring;

d) analyse test scores techniques; and
e) analyze the basic considerations to be put into account in recording marks.

Teaching and learning activities/techniques

a) Use brainstorming questions to explain basic considerations to be taken into account before administering a test
b) Organize group discussions to analyse strategies that are necessary for test administration
c) Prepare punctuated lecture to analyse test scores
d) Use think pair share techniques to distinguish between objective and subjective scoring
e) Organize small group discussions and plenary presentations to describe merits and demerits of objective scoring and subjective scoring
f) Use brainstorming questions to analyze the basic considerations to be put into account in recording marks

Teaching and learning resources

a) Sample of tests and examinations in different subjects
b) Reference books and internet materials on test administration, scoring and reporting
c) Sample of record books/reports that show the record of students' marks

Assessment activities/tools

a) Written work/assignments to explain the basic considerations to put into account before administering a test
b) Observation checklist for observing students' works on analyzing test administration procedure, marking, scoring and recording marks (scores)
c) Questions and answers to analyze the strategies that are necessary for test administration

4.0 Educational Research

This topic exposes student teachers on issues of educational research such as types and the importance of educational research and techniques of conducting educational research (i.e., writing of research proposal, data collection and analysis processes and writing of research report). The topic helps student teachers to develop basic skills in carrying out educational research in teaching and learning processes.

4.1 The concept of educational research

Estimated Time: 2 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concepts of research and educational research;
b) describe the importance of educational research;
c) identify various research approaches; and
d) analyze different research approaches.

Teaching and learning activities/techniques

a) Think-pair-share technique to explore the meaning of research and educational research
b) Group discussion to analyse the two major research approaches (i.e., qualitative and quantitative)
c) Class discussion on comparing and contrasting research approaches
d) Punctuated lecture on discussing the implications of various research approaches in educational research
e) Small group discussions and presentations to describe the importance of educational research

Teaching and learning resources

Research reports, library and internet textual materials on educational research

Assessment activities/tools

a) Written assignment to describe the characteristics/qualities of qualitative and quantitative research approaches
b) Written assignment to distinguish between qualitative and quantitative research approaches

4.2 Types of educational research

Estimated Time: 2 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) identify types of educational research; and
b) differentiate between basic research and applied research.

Teaching and learning activities/techniques

a) Through brainstorming to explain the concepts of basic and applied research respectively
b) Organize small group discussions and presentations to discuss the differences between basic and applied research
c) Organize group discussions and presentation to discuss the application of basic and applied research in an educational setting

Teaching and learning resources

Library and internet materials on types of educational research

Assessment activities/tools

a) Written assignments to explain types of educational research
b) Matrix on distinguishing basic and applied research

4.3 Action research

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) explain the meaning, purpose and characteristics of action research;
b) differentiate types of action research; and

c) analyze a model of action research.

Teaching and learning activities/techniques

a) Punctuated lecture on explaining the meaning and purpose of action research
b) Brainstorming activities on explaining the characteristics of action research
c) Panel discussions to discuss the difference between cyclic and spiral action research
d) Library search and presentations to analyse the model of action research
e) Small group discussions to discuss the application of action research in school settings

Teaching and learning resources

a) A model of action research drawn on manila cards
b) Library resources, research reports and online materials on action research

Assessment activities/tools

a) Individual assignments to explain the meaning and purpose of action research
b) Written work to discuss the application of action research in school settings
c) Questions and answers to use question words (i.e., what, why and how questions) in critiquing action research
d) Observation checklist for observing and monitoring group discussions and presentations

4.4 Research process

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concept of research process;
b) define key procedures of conducting research; and
c) analyze data, interpret, discuss and write report.

Teaching and learning activities/techniques

a) Think pair share technique to analyze the concept of research process
b) Group discussions to discuss the key procedures of conducting research and reporting findings
c) Questions and answers to analyze the key procedures of conducting research
d) Library search and presentations on the research procedures/processes

Teaching and learning resources

a) A chart of research processes
b) Internet materials on the research process/procedures

Assessment activities/tools

a) Rating scale for rating notes of research procedures obtained through library search
b) Observation checklist for observing students' discussions and activities on the key procedures of conducting research and reporting findings
c) Activity based assignment to discuss the key research procedures (i.e. writing of research problem, literature review, research methodology and reporting writing as well as the procedure for doing data analysis and interpretation and discussion)

4.5 Research proposal

Estimated Time: 8 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concept of a "research proposal";
b) analyze the components of a research proposal; and
c) write a research proposal.

Teaching and learning activities/techniques

a) Punctuated lecture on the concept "research proposal"
b) Group discussions and presentations on the components of research proposal

c) Library search on various research proposals
d) Activities based assignment to draft a research proposal

Teaching and learning resources

a) Textual and internet materials on research proposals writing skills
b) Samples of research proposal
c) Research reports

Assessment activities/tools

a) Observation checklist for observing students' skills in writing research proposals
b) Written assignments to draft to research proposals
c) Anecdotal records for documenting student's progress in writing research proposal
d) Rating scales for assessing student teachers' skills in writing research proposal

4.6 Research instruments

Estimated Time: 6 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concept of research instruments;
b) analyze different types of research instruments; and
c) construct research instruments.

Teaching and learning activities/techniques

a) Questions and answers to explain on the meaning of research instruments
b) Classroom discussions to identify and analyze types of research instruments (i.e. questionnaire, interview, observation schedules)
c) Guided group/individual assignments to prepare different types of research instrument

Teaching and learning resources

a) Samples of research instruments/tools

b) Educational research books

Assessment activities/tools

a) Individual assignments on the preparation of research instruments/tools
b) Observation checklist for observing students' works on preparing research instruments
c) Student portfolio for documenting and reflecting student teachers works in preparing research instrument/tools

4.7 Data collection and data analysis

Estimated Time: 6 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) use procedures for data collection; and
b) analyze data.

Teaching and learning activities/techniques

a) Group discussion on the procedures for collecting data
b) Data collection assignment within/outside school premises
c) Punctuated lecture to explain procedures for data analysis
d) Using samples of research data to analyze those data in groups

Teaching and learning resources

a) Samples of data and analysis reports
b) Textual and internet materials on data collection and analysis procedures

Assessment activities/tools

a) Written work on the procedures for collecting and analyzing data
b) Observation checklist for observing students' work on collecting and analyzing data
c) Rating scale for assessing student teachers' works on analyzing data

4.8 The research report

Estimated Time: 4 Hours

Specific objectives

By the end of this sub-topic, the student teacher should be able to:

a) analyze the concept of a "research report" and its main features;
b) write a research report; and
c) analyse the uses of research findings.

Teaching and learning activities/techniques

a) Think pair share technique to analyze the concept of a research report and its main features
b) Group work and presentations to write a research report
c) Classroom discussions to analyze the uses of research findings

Teaching and learning resources

Research reports, textual and internet materials on research reports

Assessment activities/tools

a) Individual assignments on writing research reports
b) Library assignment searches on report writing
c) Observation checklist for recording and monitoring group discussions and presentations

Reading List

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