Metrology III

Module Code: Phys-M3132;	**EtCTS of Course:** 5 ;	**Course Status:**	Elective
Course Title :	**Metrology III**		
Course Code:	Phys3133;	**Credits Hours:**	3
Mode of delivery:	Conditional;	**Weeks required:**	
Prerequisite(s):		**Co-requisite(s):**	
Academic Year:	20_____/_____ ;	**Year/Semester:**	III/
Students' College/Faculty:	_____;	**Department:**	Physics
Program:	Undergraduate	**Enrollment:**	_____
Instructor's Name (Coordinator)	_____		
Address: Email: _____	Block No._____;	Rm. No. _____	
Class Hours:	_____		

Course Rationale

This course aims to deepen the concepts of measurement science and quality control by attaching students to a project work in collaboration with the facilities in the Quality and Standards Authority of Ethiopia .

Learning Outcomes

Upon completion of this course students should be able to:

- explain the working principle of instrumentation;
- Perform advanced measurement activities;
- solve problems related to measurement and error analysis;
- recognize quality control, quality systems and quality management;
- troubleshoot faults ins measuring instruments;
- understanding of quality assurance and infrastructure concept in various sectors of the national economy
- Work Co-operatively: students are free to discuss homework problems with each other. Hence they have the opportunity to work co-operatively and exploit each other as a learning resource.

Course Description

Project Work on Quality and standard topics.

Course Outline

1. **Project on Topics of Standardization, Measurement or Quality infrastructure**

Method of Teaching

One semester Project work with guidance of advisor on topics of measurement, standardization and quality infrastructure.

Tentative Time Breakdown of Lecture Topics

Date	Topics	Pedagogical Approaches	Teachers' Tasks/Activities	Students' Tasks/Activities
Weeks 1	• Lecture on how to write "Project proposal" on the area	Lecture, Online learning resources	Presentation of lecture Provide different literatures	Take notes Ask questions Refer different journals and literatures
Weeks 2 and 3	•Selection of title for project (Problem identification)	Consultative	guidance	Reviewing litrature Gap identification
Week 4	• Submition of researchable problem	Consultative	Comenting identified problem	Incorporating comments
Week 5	• Writing outline of the proposal	Consultative/ Discussion	Guidance and commenting the outline	Write the outline and submit for comments
Week 6	• Approval of Project Proposal	Consultative	Give final comments Approve proposal	Incorporate final comments, Present the final proposal for approval
Week 7 to 9	•Data and information collection	Consultative and self study	Guidance	Collect data discuss with advisor
Week 10	• Writing first draft report	Consultative	Guidance	Organize data and write paper
Week 11	• Presentation of first draft	Discussion	Observe presentation Give comments	Present zero draft incorporate comments
Week 12 and 13	•Writing final draft of project	Consultative	Guidance	writing final draft of paper
Week 14	• Assesment of final draft	Consultative	Read the finaldraft give comments	Incorporate comments
Week 15	Oral presentation			

Assessment

No	Type of Assessment	Time	Weight
1	Project proposal	Week 6	10%
	Two progress reports	Week11 and 13	10%
2	Presentation and Oral quastion	Week 14	40%
3	Assesment of Project Report	All weeks	40%
		Total	100%

Recommended References

Course Textbook

FARAGO, F.T., Curtis, M.A., *Handbook of Dimensional Measurement*, Third Edition, Industrial Press, 1994

References

1. Harrison M. Wadsworth, *Modern Methods for Quality Control and Improvement*, John Weily and Sons, 2002