



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya.

Tel: +254(0) 799 529 958, +254(0) 799 529 959, +254 (0)712 524 293

Website: www.must.ac.ke Email: info@mucst.ac.ke

UNIVERSITY EXAMINATIONS 2024/2025

FOUR YEAR FIRST SEMESTER EXAMINATION FOR DEGREE OF BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

EMT 3406: ADVANCED MACHINING TECHNOLOGY

DATE: JANUARY 2025

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Differentiate non-conventional machining from conventional machining giving an example in each. (4 marks)
- b) Discuss FOUR different methods of single action non-conventional machining (8 Marks)
- c) Explain FIVE manufacturing challenges that influence the choice of machining processes (10 marks)
- d) Outline THREE thermal energy based machining processes (6 marks)
- e) State TWO limitations of Water Jet machining (2 marks)

SECTION A (ANSWER ANY TWO QUESTIONS)

QUESTION TWO (15 MARKS)

- a) Illustrate the machining system of water jet machining. (7 marks)
- b) Discuss FOUR areas of application of Water Jet Machining in surface treatment (8 marks)



QUESTION THREE (15 MARKS)

- a) Describe the principle of Chemical milling as an advanced machining process. (2 marks)
- b) Outline the FOUR steps involved in chemical milling (8 marks)
- c) List FIVE properties of maskants used in chemical milling (5 marks)

QUESTION FOUR (15 MARKS)

- a) With aid of an appropriate diagram, explain the mechanism of material removal in electro-discharge machining (EDM) (10 marks)
- b) Outline FIVE advantages of EDM (5 marks)

QUESTION FIVE (15 MARKS)

- c) Draw and explain the LBM schematic diagram (8 marks)
- d) Outline Four manufacturing process application of LBM (4 marks)
- e) List THREE limitations of LBM (3 marks)

