CRITICAL ALGORITHMS COURSE OUTLINE

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I. COURSE BACKGROUND

Critical Algorithms is a final year course based on electrical engineering honours degree. Critical Algorithms deals with interconnection between culture, society and algorithmic systems. Even though the course is self-standing, it relates to field such as Computer-Science and Sociological-Science.

II. COURSE OBJECTIVES

Critical Algorithm study is concerned with studying and analysing of the algorithms from critical theory position. The objective of this course is to equip students with knowledge necessary to understand the impact of Algorithms on everyday lives and how humans are responsible for creation of this Algorithms and later hold them accountable for their effects.

III. COURSE OUTCOMES

On successful completion of this course, the students is able to:
1) Observe how the capitalist society shape the search engines.
2) Describe and explain how the Algorithms took over human jobs, market and the world.
3) Critically evaluate the accountability of Algorithms for the fourth industrial revolution.
4) Understand what is algorithmic culture and how it alters the origin culture.
5) The consequences of Algorithmic filter on social life.

IV. COURSE CONTENT (KNOWLEDGE AREAS)

The knowledge areas in Critical Algorithms course are summarised as follows:
1) **Distinct implications of algorithms:** Embedded values, biases in algorithms, social sorting, discrimination, Personalization, accountability, policy and law.
2) **Ethnics and Algorithms:** Algorithm fairness, mapping the debate.
3) **Culture, Society and Algorithms:** Surveillance, Privacy and data.

V. PRIOR KNOWLEDGE ASSUMED

It is assumed that the student commencing this course has the general knowledge on of the following:
1) Critical Thinking (1st year of study).
2) Knowledge on Data Structures and Algorithms (2nd year of study).
3) Existence of social networks and their basic impact.

VI. ASSESSMENT

A. Formative Assessment Element

TABLE I
SUMMATIVE ASSESSMENT CONTRIBUTION

Summative Assessment Contribution	Duration (h)	Method and Weight %
Tutorial	10	20
Course Project	30	30
Examinations	3	50

B. Assessment Methods

1) Examination: During the examination, the student should showcase the strength of critical thinking and application of suitable knowledge and skills to give practical solutions to a problems given. The exam contributes 50%.

VII. SATISFACTORY PERFORMANCE (SP) REQUIREMENTS

With considerations to Rule G.13 *satisfactory performance in the work of the class* implies class and lecture attendance, submission of assignments and writing of exams are compulsory.

VIII. TEACHING AND LEARNING PROCESS

A. Teaching and Learning Approach

The fundamental information of the course is covered in lectures. The lectures are structured in a mode that accelerate student's understanding to given chapters in the course. Extra course material will be issued in lectures. Students are expected to perform self-study within this course, which allow them full understanding of the concepts. The course project will allow students to develop practical skills related to Critical Algorithm. All the concept covered in lectures ans the class project will be examined.

B. Learning Activities and Arrangements

1) Lectures: There is a single and double lecture each week. The venue and the timetable can be obtained from the school reception.

2) Tutorials: There will be a tutorial section each week after lunch for which the questions a posted a day before on Wits SAKAI website.

3) Assignment: The course assignment contribute 30% into the year mark and I will be released on SAKAI on the 3rd week of first block.