جامعة: المنصورة
كـلية: العلـــــوم
قـســم:الرياضيات

توصيف مقرر دراسى

١- بيانات المقرر		
كود المادة : Math 340	**أسم المقرر: Mathematical Logic**	**المستوى: الثالث**
التخصص : الإحصاء وعلوم الحاسب	**عدد الوحدات الدراسية: ٢ ساعة معتمدة نظرى: ٢ تمارين: ١ عملى: ٠**	

٢- هدف المقرر:	**For students undertaking this course, the aims are to:** • Study of the processes used in mathematical deduction. • Distinguish semantic reasoning ("what is true?") from syntactic reasoning ("what can be shown?"). • Ask for a description of the structures which satisfy some set of axioms.
٣- المستهدف من التدريس المقرر:	
أ- المعلومات والمفاهيم:	**a- Knowledge and Understanding :** **On completing this course, students will be able to:** a1-Admit techniques using truth tables, symbolic logic with only "and", "or", and "not" in the language, and various equivalences among methods of proof (e.g. proof by contradiction is a proof of the contrapositive). a2-Understand that syntactical rules and meaning (sementics) is associated with each formula. a3- Define the formal language contents.
ب- المهارات الذهنية	**b- Intellectual Skills:** **On completing this course, students will be able to:** b1- Organize the scientific knowledge. b2- Formalize the semantics of programming languages and specify and verify programs. b3- Describe the dynamic behavior of a circuit element or program.
ج- المهارات المهنية الخاصة بالمقرر:	**c-Professional and Practical Skills:** **On completing this course, students will be able to:** c1- Check the proof of different problems based on syntactical axioms. c2- Develop an automated theorem prove. c3- Construct a formal language interpretation for different mathematical systems.
د- المهارات العامة :	**d-General and Transferable Skills:** **On completing this course, students will be able to:** d1- Reason about knowledge by defining new truth measure such as consistency measure. d2- Solve the problems of similarity analysis and dissimilarity analysis. d3- Handle uncertainty logic (such as fuzzy logic). d4- Analyze the conflict problems.
٤- محتوى المقرر:	1- Introduction to logic programming. 2- Propositional Calculus: formula, model, tableaux. 3- Propositional Calculus: deductive systems. 4- Predicate calculus: formula, model, tableaux. 5- Predicate calculus: deductive systems. 6- Equivalence substitution. 7- Semantics and verification.

٥- اساليب التعليم والتعلم:	**-Teaching and Learning Methods** 1 - Lectures using data show. 2- Tutorial.
٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة:	The same as normal students, only skeletal disabilities are allowed in the Faculty of Science.
٧- تقويم الطلاب :	
أ- الأساليب المستخدمة :	1. Mid-term exam to assess 2. Final exam to assess 3. Oral exam to assess 4. Report to assess
ب- التوقيت :	1. Mid-term exam Week 7 2. Final exam Week 16 3. Oral exam Week 16 4. Report Week 16
ج- توزيع الدرجات :	Mid-term examination 10% Final-Term Examination 80% Oral Examination 10% Total 100%
٨- قائمة الكتب الدراسية والمراجع :	
أ- مذكرات:	
ب- كتب ملزمة	• Stephen G. Simpson, Mathematical Logic, the Pennsylvania State University, 2008. • Amit Konar, Artificial intelligence and Soft Computing, CRC Press, Boca Raton London New York Washington, D.C., 2000. • Some Articles on Mathematical Logic.
ج- كتب مقترحة :	
د- دوريات علمية أو نشرات..	

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	اسبوع الدراسة	المعارف الرئيسية	مهارات ذهنية	مهارات مهنية	مهارات عامة
1- Introduction to logic programming.	1-2	a1, a2			
2- Propositional Calculus: formula, model, tableaux.	3-4	a1, a2	b1	c1	d1, d2
3- Propositional Calculus: deductive systems.	5-6	a1, a2	b2	c2	d1, d2
4- Predicate calculus: formula, model, tableaux.	7-8	a2, a3	b2	c2	d1, d2
5- Predicate calculus: deductive systems.	9-10	a2, a3	b3		d3, d4
6- Equivalence substitution.	11-12	a2, a3	b3		d3, d4
7- Semantics and verification.	13	a2, a3		c3	d3, d4

أستاذ المادة : د. / أسامة محمود السيد السيد عودة

رئيس مجلس القسم العلمى: أ.د./ مجدى الياس فارس