جامعة قناة السويس
كلية العلوم
وحدة ضمان الجودة
قسم الرياضيات

المعايير الأكاديمية لبرنامج علوم الحاسب

كلية العلوم بالإسماعيلية

2023/2022

إلى ابنائنا طلاب مرحلة البكالوريوس
والزملاء أعضاء هيئة التدريس

رئيس قسم الرياضيات
ورئيس مجلس ادارة برنامج علوم الحاسب
أ.د/ مدحت أحمد رخا

منسق برنامج علوم الحاسب
د/ الشيماء مصطفى

مدير وحدة الجودة بالقسم
د/ سوزان على محمد

منسق معيار المعايير الأكاديمية بالبرنامج
د/ أمل سيد محمد

General Attributes of the Graduates

The graduates must be able to:

- Recognize the role of computer Science in the development of society.
- Develop scientific approaches that meet community needs considering economic, environmental, social, ethical, and safety requirements.
- Utilize scientific facts and theories to analyze and interpret specific data.
- Collect, analyze, and present data using appropriate formats and techniques.
- Postulate concepts and choose appropriate solutions to solve problems on scientific basis.
- Apply effectively information technology relevant to the field.
- Participate effectively in a multidisciplinary teamwork and be flexible for adaptation, decision making and working under contradictory conditions as well as exhibiting the sense of beauty and neatness.
- Adopt self and long life-learning and participate effectively in research activities.
- Deal with scientific data in Arabic, English or other languages.
- Understand, recognize, and describe patterns and make abstractions about them.
- Draw conclusions about the real world using mathematical modeling and programming language.
- Find true statements that can be made about mathematical objects
- Apply techniques, tools, and formulas to understand an object's attributes.
- Recognize and use various types of reasoning, problem solving and methods of proof.
- Create and use representations to model and interpret computer science concepts.
- Recognize and understand how computer science concepts interconnect and build on one another.
- Recognize distance education and hybrid learning programs and systems for managing distant electronic meetings.
- Use efficiently electronic systems that support digital transformation including hybrid learning and distant electronic meetings.

Intellectual skills:

The graduates must be able to:

- Differentiate between theories related to computer science and assess their concepts and principles.
- Analyze, synthesize, assess and interpret qualitatively and quantitatively computer science relevant data.
- Develop lines of argument and appropriate judgments in accordance with scientific theories and concepts.
- Postulate and deduce algorithms to handle programming problems.
- Construct several related and integrated information to confirm, make evidence and test hypotheses.
- Formulate software using appropriate mathematical algorithms.
- Construct symbolic forms of problem situations through modeling real-world situations, develop and use the models to make predictions and informed decisions.
- Recognize, compare, and transform mathematical objects in computer science.
- Represent, abstract and interpret problems.
- Develop connections within branches of computer science and between computer science and other disciplines.
- Utilize appropriate processes in computer science.
- Judge the validity of mathematical arguments and the reasonableness of results.

Professional and practical skills

The graduates must be able to:

- Plan, design, process and report on the investigated data, using appropriate techniques and considering scientific guidance.
- Apply techniques and tools considering scientific ethics.
- Solve problems using a range of formats and approaches.
- . Identify and criticize the different methods used in addressing subject related issues.
- Apply mathematical arguments to build convincing logical computer modeling.
- Develop conjectures and draw appropriate conclusions, and test these conjectures.
- Identify required mathematics and other technical information independently.
- Use computer technology to enhance mathematical thinking and understanding.
- Conduct independent nontrivial exploration in computer science.
- Develop and reinforce tenacity and confidence in their abilities to use programming languages.

General and transferable skills

The graduates must be able to:

- Use information and communication technology effectively.
- Identify roles and responsibilities, and their performing manner.
- Think independently, set tasks and solve problems on scientific basis.
- Work in groups effectively, manage time, collaborate and communicate with others positively.
- Consider community linked problems, ethics and traditions.
- Acquire self- and long life- learning.
- Apply scientific models, systems, and tools effectively.

Knowledge and understanding

Graduates must acquire knowledge and understanding of:

- Facts, concepts, principles and techniques related to computer science.
- Mathematical theories and their applications in computer science.
- The processes and terminology supporting different fields of computer science.

- Theories and methods applied for interpreting and analyzing data related to computer science.
- The developmental progress of the knowledge related to computer science.
- The relation between the computer science and society development.
- Numerical mathematics, and the different ways in which data is processed.
- Mathematical methods and techniques that deal with differential equations and their applications.
- Geometrical concepts, and processes used in measuring attributes of objects.
- The concept of programming and its role in problem solving.
- Discrete mathematics, algorithms, and combinatorial abilities in order to solve problems of finite character and enumerate sets without direct counting.
- Probability and statistical models to make inferences about real-world situations.
- Modeling and symbolic representations of problem situations.
- The operational research models and their applications in large scale problems using computer science techniques.
- Theories and applications of other mathematical trends, applied mathematics, mathematical statistical and computer science.

يسعى برنامج علوم الحاسب بقسم الرياضيات بكلية العلوم جامعة قناة السويس إلى أن يضع المعايير الأكاديمية القياسية الخاصة بمرحلة البكالوريوس متسقة مع المعايير الأكاديمية القياسية القومية **(NARS)** المعلنة من الهيئة القومية لضمان جودة التعليم والأعتماد بما يضمن إستيفاء الخريج للمواصفات التى يتطلبها سوق العمل، وأن يرتقى بتلك المعايير بما يحقق تميز البرنامج ودعم تنافسيته، وتتوافق هذة المعايير مع رسالة البرنامج وأهدافه الأستراتيجية.

المعايير الأكاديمية المرجعية الوطنية
National Academic Reference Standards (NARS)

هى مجموعة من المعايير التي وضعتها لجان متخصصة بمشاركة أصحاب المصلحة والمستفيدين الآخرين مع الأخذ فى الإعتبار المعايير الدولية والحفاظ على خصوصية الثقافية للأمة و هذه تمثل أساس تصميم البرامج التعليمية.

The attributes السمات

مجموعة من الخصائص المتوقعة من الخريجين، والتي تستفيد من الحصول منها علي المعرفة والفهم والمهارات الضرورية للعمل و / أو مواصلة التعليم والبحوث الأكاديمية على مستوى مناسب في المجال ذي الصلة.

مخرجات التعلم
Intended learning outcomes

هي المعرفة والفهم والمهارات التي تعتزم المؤسسة تقديمها فى برامجها التعليمية والتى تعكس رؤية ورسالة المؤسسة وتعكس استخدام معايير مرجعية خارجية على مستوى مناسب.