

University of Basrah

جامعة البصرة



First Cycle – Bachelor's degree (B.Sc.) – Computer Science

بكالوريوس علوم الحاسوب وتكنولوجيا المعلومات



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Mission & Vision Statement .1

Vision Statement

The mission of our computer science department is to provide a comprehensive and rigorous education in computer science that prepares students for successful careers, advanced studies, and lifelong learning in the rapidly evolving field of computing. We are committed to fostering a diverse and inclusive community of learners and researchers, promoting excellence in teaching and research, and engaging in collaborations that contribute to the advancement of computer science and its applications.

Mission Statement

Our vision is to be a leading computer science department recognized for its innovation, excellence, and societal impact. We strive to be at the forefront of computer science education, research, and technology development, equipping our students with the knowledge, skills, and mindset necessary to address complex challenges and make meaningful contributions in academia, industry, entrepreneurship, and public service. We aim to cultivate a culture of curiosity, collaboration, and creativity, where interdisciplinary approaches are embraced, ethical considerations are paramount, and technological advancements are leveraged to address global problems and improve the human condition.

Program Specification .2

| | | | |
|-----------------|-----------------------|-----------------------|-----------|
| Programme code: | BSc-CS | ECTS | 240 |
| Duration: | 4 levels, 8 Semesters | Method of Attendance: | Full Time |

The Computer Science Department program aims to provide a comprehensive and rigorous education in computer science to prepare students for successful careers, advanced studies, and lifelong learning in the field of computing. The program emphasizes theoretical foundations, practical skills, critical thinking, problem-solving, and ethical considerations.

Program Goals .3

1. Provide students with a solid foundation in computer science principles, theories, and methodologies.
2. Equip students with practical skills in programming, software development, data analysis, algorithms, and computer systems.
3. Foster critical thinking, analytical reasoning, and problem-solving abilities among students.
4. Instill an understanding of the ethical, societal, and legal implications of computer science.
5. Encourage interdisciplinary collaboration and the application of computer science principles in various domains.
6. Prepare students for successful careers in academia, industry, entrepreneurship, and public service.
7. Promote lifelong learning and the ability to adapt to emerging technologies and trends in computer science.

Student Learning Outcomes .4

Upon completion of the Computer Science Department program, students will:

1. Demonstrate a solid understanding of fundamental computer science principles, theories, and methodologies.
2. Apply programming skills and software development techniques to solve computational problems.
3. Design and implement efficient algorithms and data structures for various applications.
4. Analyze and evaluate the performance of algorithms and computer systems.
5. Develop software systems following best practices in software engineering.
6. Utilize databases effectively for data storage, retrieval, and management.
7. Demonstrate proficiency in computer architecture and operating systems concepts.
8. Apply mathematical and statistical methods for analyzing and interpreting data.
9. Collaborate effectively in multidisciplinary teams to solve complex problems.
10. Communicate technical concepts and findings clearly and effectively, both orally and in writing.
11. Consider ethical, societal, and legal implications in the design and implementation of computer systems.
12. Adapt to emerging technologies and learn new programming languages and tools as needed.
13. Engage in lifelong learning and professional development to stay current in the field.

14. Apply critical thinking and problem-solving skills to address real-world challenges in computer science.

15. Demonstrate awareness of current research trends and contribute to scholarly activities.

These student learning outcomes reflect the core competencies and knowledge areas that students will acquire throughout their education in the Computer Science Department program.

Academic Staff .5

صلاح فليح صالح | Ph.D. in Computer Science | Assistant Professor
Email: aldarraji@uobasrah.edu.iq
Mobile no.: +964-7710521319

حميد عبد الكريم يونس | Ph.D. in Computer Science | Professor
Email:
Mobile no.:

ميثم ابوالهليل شهيد | Ph.D. in Computer Science | Professor
Email:
Mobile no.:

عماد شعلان جبر | Ph.D. in Computer Science | Professor
Email:
Mobile no.:

اسراء جاسم حرفش | Ph.D. in Computer Science | Professor
Email:
Mobile no.:

عدالة مهدي جواد | Ph.D. in Computer Science | Assistant Professor
Email:
Mobile no.:

يسرى مالك ضميد | Ph.D. in Computer Science | Assistant Professor
Email:
Mobile no.:

سهاد مهجر كريم | Ph.D. in Computer Science | Assistant Professor
Email:
Mobile no.:

زينب نجم نمر | Ph.D. in Computer Science | Assistant Professor

Email:

Mobile no.:

رعد عبد الحسن مهجر | Ph.D. in Computer Science | Assistant Professor

Email:

Mobile no.:

حكمت زنيذ نعمة | Ph.D. in Computer Science | Lecturer

Email:

Mobile no.:

شذى فالح هندي | Ph.D. in Computer Science | Lecturer

Email:

Mobile no.:

معالم عبدعلي حسن | Ph.D. in Computer Science | Lecturer

Email:

Mobile no.:

ناصر عودة جاسم | Ph.D. in Computer Science | Lecturer

Email:

Mobile no.:

ايمان قيس عبدالجليل | M.Sc. in Computer Science | Professor

Email:

Mobile no.:

صبي عبدالواحد صدام | M.Sc. in Computer Science | Assistant Professor

Email:

Mobile no.:

أمل حميد خليل | M.Sc. in Computer Science | Assistant Professor

Email:

Mobile no.:

بيداء عبدالقادر خضر | M.Sc. in Computer Science | Lecturer

Email:

Mobile no.:

علي صلاح هاشم | M.Sc. in Computer Science | Lecturer

Email:

Mobile no.:

هدى عادل علي | M.Sc. in Computer Science | Lecturer

Email:

Mobile no.:

Credits, Grading and GPA .6

Credits

University of Basrah is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

| GRADING SCHEME | | | | |
|--|------------------|---------------------|-----------|---------------------------------------|
| مخطط الدرجات | | | | |
| Group | Grade | التقدير | Marks (%) | Definition |
| Success Group (50 - 100) | A - Excellent | امتياز | 90 - 100 | Outstanding Performance |
| | B - Very Good | جيد جدا | 80 - 89 | Above average with some errors |
| | C - Good | جيد | 70 - 79 | Sound work with notable errors |
| | D - Satisfactory | متوسط | 60 - 69 | Fair but with major shortcomings |
| | E - Sufficient | مقبول | 50 - 59 | Work meets minimum criteria |
| Fail Group (0 - 49) | FX – Fail | راسب - قيد المعالجة | (45-49) | More work required but credit awarded |
| | F – Fail | راسب | (0-44) | Considerable amount of work required |
| Note: | | | | |
| Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above. | | | | |

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

CGPA of a 4-year B.Sc. degree:

$$CGPA = [(1st^{th} \text{ module score} \times ECTS) + (2nd^{th} \text{ module score} \times ECTS) + \dots] / 240$$

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|--|------|-------|------|------|-------------|
| CS101 | Programming Fundamentals I | 92 | 108 | 8.00 | | |
| CS102 | Computational Thinking for Problem Solving | 47 | 78 | 5.00 | | |
| CS103 | Mathematics for Computer Science | 62 | 88 | 6.00 | | |
| CS104 | Computer Skills | 77 | 98 | 7.00 | | |
| CS105 | English Language I | 47 | 53 | 4.00 | | |
| | | | | | | |

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|--------------------------------------|------|-------|------|------|-------------|
| CS106 | Programming Fundamentals II | 92 | 108 | 8.00 | | |
| CS107 | Digital Logic Design | 77 | 98 | 7.00 | | |
| CS108 | Discrete Structures | 47 | 78 | 5.00 | | |
| CS109 | Principles of Information Technology | 62 | 88 | 6.00 | | |
| CS110 | English Language II | 47 | 53 | 4.00 | | |
| | | | | | | |

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|--|------|-------|------|------|-------------|
| CS201 | Object Oriented Programming I | 77 | 98 | | | |
| CS202 | Data Structures and Algorithms I | 77 | 73 | | | |
| CS203 | Computer Organization and Architecture | 47 | 78 | | | |
| CS204 | System Analysis and Design | 47 | 103 | | | |
| CS205 | Probability and Statistics | 62 | 88 | | | |
| | | | | | | |

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|-----------------------------------|------|-------|------|------|-------------|
| CS206 | Object Oriented Programming II | 77 | 98 | 7.00 | | |
| CS207 | Data Structures and Algorithms II | 77 | 73 | 6.00 | | |
| CS208 | Computation Theory | 47 | 78 | 5.00 | | |
| CS209 | Database Systems | 77 | 73 | 6.00 | | |
| CS210 | Web Development | 77 | 73 | 6.00 | | |
| | | | | | | |

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|---------------------------|------|-------|------|------|-------------|
| CS301 | Artificial Intelligence I | 77 | 98 | 7.00 | | |
| CS302 | Computer Networks I | 77 | 73 | 6.00 | | |
| CS303 | Visual Programming | 77 | 73 | 6.00 | | |
| CS304 | Web Technologies | 77 | 73 | 6.00 | | |
| CS305 | Computer Graphics | 62 | 63 | 5.00 | | |
| | | | | | | |

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|----------------------------|------|-------|------|------|-------------|
| CS306 | Artificial Intelligence II | 77 | 98 | 7.00 | | |
| CS307 | Computer Networks II | 77 | 73 | 6.00 | | |
| CS308 | Compiler Construction | 77 | 73 | 6.00 | | |
| CS309 | Software Engineering | 62 | 88 | 6.00 | | |
| CS310 | Operations Research | 47 | 78 | 5.00 | | |
| | | | | | | |

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|--------------------------------|------|-------|------|------|-------------|
| CS401 | Operating Systems | 77 | 73 | 6.00 | | |
| CS402 | Information Security | 62 | 88 | 6.00 | | |
| CS403 | Mobile Application Development | 77 | 73 | 6.00 | | |
| CS404 | Cloud Computing | 62 | 88 | 6.00 | | |
| CS405 | Graduation Project I | 62 | 88 | 6.00 | | |
| | | | | | | |

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|-------|-------------------------------------|------|-------|------|------|-------------|
| CS406 | Selected Topics in Computer Science | 77 | 73 | 6.00 | | |
| CS407 | Cybersecurity | 77 | 73 | 6.00 | | |
| CS408 | Computer Vision | 77 | 73 | 6.00 | | |
| CS409 | Internet of Things | 62 | 88 | 6.00 | | |
| CS410 | Graduation Project II | 32 | 118 | 6.00 | | |
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Contact .8

Program Manager:

صلاح فليح صالح | Ph.D. in Computer Science | Assistant Prof.

Email: aldarraji@uobasrah.edu.iq

Mobile no.: +964-7710521319

Program Coordinator:

ميثم ابو الهيل شهيد | Ph.D. in Computer Science | Professor

Email: ma@uobasrah.edu.iq