College of Engineering_

Bachelor of Science in Environmental Engineering (BSEnE)

University of Technology Bahrain

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College of Engineering

Bachelor of Science in Environmental Engineering (BSEnE)

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كلية الهندسة

بكالوريوس العلوم في الهندسة البيئية (BSEnE)

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Introduction

The Bachelor of Science in Environmental Engineering (BSEnE) governs the interrelationships of man and nature along with the processes that impact the balance of our desire to achieve sustainable growth while maintaining desirable environmental quality. It covers areas of mathematics, basic sciences (physical, chemical and biological), engineering design and analysis, and environment management and regulations necessary to address complex environmental engineering problems.

Degree Facts

- Students will gain a wide range of transferable skills relevant to employability and personal development.

- The duration of the programme is four (4) years.

- The medium of instruction in all courses is English.

- The number of credits required to graduate is 204 units.

Entry Requirements

A new student applicant is required to submit all of the following documents together with the completely filled out application form:

- UTB Placement Test (Oxford Online Placement Test) Results

- Original Secondary School Certificate or its equivalent together with an English translation of the transcript and / or an "A" level certification from the Ministry of Education

- A photocopy of the applicant's passport or at least 2 valid identification cards and 4 copies of recent passport-size photographs

- Certificate of good moral character from last school attended and graduated from

- If the applicant has taken any Standardized English Test such as: TOEFL score of at least 500 (173 CBT, 61 IBT) or its equivalent in a standardized English language test, such as 5.5 IELTS or other standardized internationally recognized English test approved by the Ministry of Education, the applicant may be exempted from taking the English foundation courses.

- 75.000 BHD for each credit unit

Careers

BSEnE graduates can work as test field engineers, environmental impact assessor, pollution control officer, environmental consultant, environmental health safety director, water project manager, wastewater engineer, water quality control director, recycling products manager/engineer, hazardous waste test engineer, environmental compliance specialist, biotech remediation project scientist, green building engineer, and environmental project engineering consultant.

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المقدمة

ينظم بكالوريوس العلوم في الهندسة البيئية (BSEnE) العلاقات المتبادلة بين الإنسان والطبيعة جنبًا إلى جنب مع العمليات التي تؤثر على توازن رغبتنا في تحقيق النمو المستدام مع الحفاظ على الجودة البيئية المرغوبة. و هو يغطي مجالات الرياضيات والعلوم الأساسية (الفيزيائية والكيميائية والبيولوجية) والتصميم الهندسي والتحليل وإدارة البيئة واللوائح اللازمة لمعالجة مشاكل الهندسة البيئية المركبة.

حقائق تتعلق بالدرجة العلمية

- اكتساب الطلاب لمجموعة واسعة من المهارات القابلة للتحويل ذات الصلة بقابلية التوظيف و تطوير الذات.

- مدة البرنامج (أربعة) أعوام.

- لغة التدريس في جميع المساقات الدراسية هي اللغة الإنجليزية.

- عدد الساعات المعتمدة المطلوبة للتخرج هي 204 وحدة دراسية.

متطلبات الالتحاق

على الطالب المستجد تقديم كافة الوثائق التالية مع تعبئة نموذج طلب الألتحاق:

- على الطالب اجتياز اختبار القبول بجامعة البحرين للتكنولوجيا (امتحان اكسفورد اونلاين).

- أصل الشهادة الثانوية أو ما يعادلها مع تقديم نسخة مترجمة منها إلى اللغة الأنجليزية أو شهادة المستوى (A Level).

- صورة من جواز سفر الملتحق أو بطاقتين شخصيتين للهوية على الأقل ساريتا العمل بهما وأربع صور فوتوغرافية حديثة بحجم صور جواز السفر.

- شهادة حسن السيرة والسلوك من آخر مدرسة حضرها وتخرج منها.

- في حالة اجتياز الطالب لأي اختبار للغة الإنجليزية مثل: توفل مع حصوله على 500 على الأقل (173 CBT، 61 IBT) أو ما يعادلها من اختبارات اللغة الإنجليزية مثل أيلتس5.5 أو أي اختبار آخر للغة الإنجليزية معترف بها عالميًا وتكون معتمدة من قبل وزارة التعليم، يتم إعفاء الطالب من دراسة المقررات التعليمية الأساسية للغة الإنجليزية.

- الرصيد الأصلي للرسوم غير مسترجعة لطلب التقديم.

- شهادة طبية صادرة من مركز طبي معتمد من وزارة التربية والتعليم.

- على الطالب سداد رسوم تعادل 75 دينارا بحرينيا لكل ساعة معتمدة.

الحياة العملية بعد التخرج

يمكن للطلاب العمل كمهندسين اختبار ميدانيين، مقيمين للأثر البيئي، موظفي مراقبة التلوث، استشاريين بيئيين، مديري سلامة الصحة البيئية، مديري مشاريع المياه، مهندسي مياه الصرف الصحي، مديري مراقبة جودة المياه، مديري/مهندسي منتجات إعادة التدوير، مهندسي اختبار النفايات الخطرة، أخصائيين المعالجة بالتكنولوجيا الحيوية، مهندسي مباني خضراء، ومستشاري هندسة مشاريع بيئية.

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COLLEGE OF ENGINEERING
BACHELOR OF SCIENCE IN ENVIRONMENTALENGINEERING(BSEnE)
CURRICULUM PLAN EFFECTIVE SY2022-2023

REMEDIAL CLASSES

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
ENGL501	Speaking and Listening	9	0	0	-
ENGL504	Grammar and Vocabulary	9	0	0	-
MATH500	Remedial Mathematics	3	0	0	-
Total Units				**0**	

FIRST YEAR – FIRST TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisite
MATH611	College Algebra	3	0	3	-
ENGG601	Engineering Drawing	2	2	3	-
CHEM611	General Chemistry 1	2	2	3	-
ENGL611	English Communication Skills 1	3	0	3	-
CSCI611A	Introduction to Computing	2	2	3	-
SOCI600	Sociology	3	0	3	-
EUTH500	Euthenics 1	1	0	0	-
Total Units				**18**	

FIRST YEAR – SECOND TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
MATH612	Plane and Spherical Trigonometry	3	0	3	-
SCIE631	Biology	2	2	3	-
CHEM621	Inorganic Chemistry	2	2	3	CHEM611
ENGL621	English Communication Skills 2	3	0	3	ENGL611
ARAB600	Arabic Language	3	0	3	-
CENG621	Computer Programming 1	2	2	3	CSCI611A
EUTH501	Euthenics 2	1	0	0	EUTH500
Total Units				**18**	

Note: A minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

FIRST YEAR – THIRD TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
MATH632	Differential Calculus with Analytic Geometry	5	0	5	MATH611,MATH612
ENGL631	Speech and Oral Communication	2	2	3	ENGL621
CHEM631	Organic Chemistry	3	2	4	CHEM621
ENVE611	Elementary Surveying	2	2	3	MATH612
HIST600	History of Bahrain and GCC Region	3	0	3	-
Total Units				**18**	

SECOND YEAR – FIRST TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
HUMR600	Human Rights	3	0	3	SOCI600
CHEM711	Analytical Chemistry	3	2	4	CHEM631
MATH712	Integral Calculus with Differential Equations	5	0	5	MATH632
ENGL711	Technical Writing	3	0	3	ENGL621
PHYS631	University Physics 1	2	2	3	MATH632
Total Units				**18**	

SECOND YEAR –SECOND TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
MATH621	Probability and Statistics	3	0	3	MATH632
ENGG721	Thermodynamics	3	0	3	PHYS631
CHEM722	Environmental Biochemistry	2	2	3	SCIE631
ENGG722	Engineering Economy	3	0	3	MATH611
PHYS711	University Physics 2	2	2	3	PHYS631
ENVE721	Fundamentals of Environmental Engineering	3	0	3	SCIE631
Total Units				**18**	

Note: A minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

SECOND YEAR –THIRD TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
MATH733	Linear Algebra	2	2	3	MATH712
CHEM723	Physical Chemistry	2	2	3	CHEM711
ENGG723	Safety Engineering	2	0	2	-
ENVE722	Unit Operation: Fluid Mechanics	2	2	3	ENGG721
SCIE723	Environmental Microbiology	2	2	3	SCIE631
ENGG724	Engineering Mechanics	3	0	3	PHYS711
Total Units				**17**	

THIRD YEAR –FIRST TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
CHEM811	Water Chemistry	2	2	3	CHEM722
MATH722	Advanced Mathematics	2	2	3	MATH712
ENGG814	Engineering Materials	3	0	3	CHEM611
ENVE811	Unit Operation: Heat Transfer	2	2	3	ENGG721
ENGG852	Professional Ethics in Engineering Education	1	0	1	-
CHEM812	Atmospheric Chemistry	3	0	3	CHEM631
Total Units				**16**	

THIRD YEAR –SECOND TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
ENVE821	Water Resources Engineering	3	0	3	CHEM811
ENVE822	Instrumentation and Control	2	2	3	CHEM711
ENVE823	Unit Operation: Mass Transfer	2	2	3	ENVE811
MATH732	Numerical Methods and Analysis	2	2	3	MATH722
ENVE824	Air Pollution and Prevention	3	0	3	ENVE721
ENVE825	ENVE Unit Operation: Physical and Chemical Treatment	2	2	3	ENVE722
Total Units				**18**	

Note: A minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

THIRD YEAR –THIRD TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
ENVE831	Air Quality Engineering	3	0	3	ENVE824
ENVE832	Soil Engineering	3	0	3	ENVE821
ENVE833	Environmental Engineering Laws and Regulations	3	0	3	ENVE722
ENVE834	Environmental Quality Systems Engineering	3	0	3	ENVE721
ENVE835	ENVE Unit Operation: Biological Treatment	2	2	3	SCIE723
ENVE836	Technopreneurship	3	0	3	ENGG722
Total Units				**18**	

FOURTH YEAR –FIRST TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
ENVE837	Methods of Research with Inferential Statistics	3	0	3	MATH621
ENVE838	Project and Engineering Management (Risk Analysis)	3	0	3	ENGG722
ENVE839	Engineering Hydrology	3	0	3	ENVE821
ENVE840	Oil and Gas Technology 1	3	0	3	ENVE821
ENVE8XX	Elective 1	2	2	3	ENVE834
ENVE8XX	Elective 2	2	2	3	ENVE834
Total Units				**18**	

FOURTH YEAR – SECOND TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
ENVE8XX	Elective 3	2	2	3	ENVE834
ENVE841	Environmental Planning and Design	3	0	3	ENVE834
ENVE842	Industrial Attachment	0	12	6	4th year
ENVE843	Environmental Engineering Project Design A	3	0	3	ENVE838
Total Units				**15**	

Note: A minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

FOURTH YEAR – THIRD TRIMESTER

CourseCode	Course Title	LecHrs	Lab Hrs	Credit Units	Prerequisites
ENVE844	Wastewater Engineering	3	0	3	ENVE835
ENVE845	Oil and Gas Technology 2	3	0	3	ENVE840
ENVE846	Environmental Impact Assessment	3	0	3	ENVE834
ENVE847	Environmental Engineering Project Design B	3	0	3	ENVE834
Total Units				**12**	
Grand Total				**204 Credit Units**	

TECHNICAL ELECTIVES

CourseCode	CourseTitle	Units
ENVE6XX(848)	Renewable Energy	3
ENVE6XX(849)	Climate and Global Warming	3
ENVE6XX(850)	Remote Sensing	3
ENVE6XX (851)	Hazardous Waste Management and Remediation	3
ENVE6XX(852)	Introduction to GIS	3
ENVE6XX(853)	Advanced Topics in Environmental Engineering	3
Total		9

Note: A minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

College of Engineering_

Bachelor of Science in Mechatronics Engineering (BSME)

HEC – IA
ACCREDITED

University of Technology Bahrain

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Introduction

The BSME programme combines mechanical, electronics, electrical, and computer engineering. It is an interdisciplinary scientific area focusing on the study and design of intelligent programmable systems from an engineering perspective and looks into the design, development and controlling of advanced hybrid systems. The programme intends to produce graduates who can practice as successful mechatronics engineers for the advancement of society and promote professionalism in mechatronics engineering practice.

Degree Facts

- Students will gain a wide range of transferable skills relevant to employability and personal development

- The duration of the programme is four (4) years

- The medium of instruction in all courses is English

- The number of credits require to graduate is 204 units

- A minimum CGPA of 2.0 is required for graduation

Entry Requirements

A new student applicant is required to submit all of the following documents together with the completely filled out application form:

- UTB Placement Test (Oxford Online Placement Test) Results;

- Original Secondary School Certificate or its equivalent together with an English translation of the transcript and/ or an "A" level certification from the Ministry of Education (MOE);

- A photocopy of the applicant's passport or at least 2 valid identification cards and 4 copies of recent passport-size photographs;

- Certificate of good moral character from last school attended and graduated from;

- If the applicant has taken any Standardized English Test such as: TOEFL score of at least 500 (173 CBT, 61 IBT) or its equivalent inastandardizedEnglishlanguagetest,suchas5.5IELTS or other standardized internationally recognized English test approved by the MOE, the applicant may be exempted from taking the English foundation courses;

- Official Receipt of the non-refundable application fee; and

- Medical examination certificate issued by a medical health centre endorsed by MOE.

- 51.500 BHD for each credit unit

المقدمة

برنامج بكالوريوس العلوم في هندسة الميكاترونكس هو برنامج هندسي يجمع مجالات هندسية متعددة ميكانيكية والكترونية وكهربائية وهندسة الكمبيوتر، وهو تخصص علمي يركز على دراسة وتصميم نظم برمجة ذكية من منظور هندسي يقوم على تصميم وتطوير وضبط نظم هندسية مركبة ومتقدمة. كما يقوم البرنامج على تخريج مهندسين قادرين على النجاح في ممارسة هندسة الميكاترونكس لتطوير تقدم المجتمع والسعي نحو تعزيز أهمية ومكانة هندسة الميكاترونكس.

حقائق تتعلق بالدرجة العلمية

- يزود البرنامج الطلبة بقدر كبير من المهارات الخاصة المتعلقة بإمكانية التحاقهم بالوظائف والتطوير الشخصي.

- مدة البرنامج (أربعة) أعوام. اللغة الإنجليزية هي لغة التعليم في جميع المقررات التعليمية.

- عدد الساعات المطلوبة لتخرج الطالب هي 204 ساعة معتمدة. يجب أن لا يقل المعدل التراكمي عن 2.0 للتخرج.

متطلبات الالتحاق

على الطالب المستجد تقديم كافة الوثائق التالية مع تعبئة نموذج طلب الإلتحاق:

- على الطالب اجتياز اختبار القبول بجامعة البحرين للتكنولوجيا (امتحان اكسفورد اونلاين).

- أصل الشهادة الثانوية أو ما يعادلها مع تقديم نسخة مترجمة منها إلى اللغة الأنجليزية أو شهادة المستوى (A Level).

- صورة من جواز سفر الملتحق أو بطاقتين شخصيتين للهوية على الأقل ساريتا العمل بهما وأربع صور فوتوغرافية حديثة بحجم صور جواز السفر.

- شهادة حسن السيرة والسلوك من آخر مدرسة حضرها وتخرج منها.

- في حالة اجتياز الطالب لأي اختبار للغة الإنجليزية مثل: توفل مع حصوله على 500 على الأقل (173 CBT، 61 IBT) أو ما يعادلها من اختبارات اللغة الإنجليزيةمثل أيلتس5.5 أوأياختبار آخر للغة الإنجليزية معترف بها عالميا وتكون معتمدة من قبل وزارة التعليم، يتم إعفاء الطالب من دراسة المقررات التعليمية الأساسية للغة الإنجليزية.

- الرصيد الأصلي للرسوم غير مسترجعة لطلب التقديم.

- شهادة طبية صادرة من مركز طبي معتمد من وزارة التربية والتعليم.

- على الطالب سداد رسوم تعادل 51.5 ديناراً بحريني آ لكل ساعة معتمدة.

Careers

The BSME graduates can pursue a career as a production engineer, instrumentation engineer, production/ manufacturing supervisor, PLC Programmer, design Engineer, vocational instructor/trainer; laboratory engineer, maintenance supervisor, or sales engineer. In addition, the programme can lead graduates for postgraduate degrees in engineering.

الحياة العملية بعد التخرج

يمكن لخريج هندسة الميكاترونكس العمل كمهندس انتاج/تصنيع، مبرمج خطوط تصنيع، مهندس تصميم، مدرب/مدرس مهني، مهندس مختبر، مشرف صيانة، مهندس مبيعات، بالإضافة الى ان هذا البرنامج يقود الى الدراسات العليا في مجال الهندسة.

موافقة الأمانة العامة لمجلس التعليم العالي رقم (0806-22)

University of Technology Bahrain

COLLEGE OF ENGINEERING

BACHELOROF SCIENCEINMECHATRONICS ENGINEERING(BSME)
CURRICULUM PLAN EFFECTIVE **SY2019-2020**

REMEDIAL CLASSES

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT UNITS	PRE-REQUISITES
ENGL301	Speaking and Listening	9	0	0	
ENGL302	Grammar and Vocabulary	9	0	0	
MATH300	Remedial Mathematics	3	0	0	

FIRST YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
ARAB400A	Arabic Language	3	0	3	
CHEM400	General Chemistry 1	2	2	3	
CENG411	Introduction to Computing	2	2	3	
ENGL401	English Communication Skills 1	3	0	3	
EUTH400	Euthenics 1	1	0	0	
MATH401	College Algebra	3	0	3	
MATH402	Plane and Spherical Trigonometry	3	0	3	
			TOTAL	18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
CENG511	Computer Programming	2	2	3	CENG411
ENGL402	English Communication Skills 2	3	0	3	ENGL401
EUTH401	Euthenics 2	1	0	0	EUTH400
HIST400	History of Bahrain and GCC Region	3	0	3	
MATH406	Differential Calculus with Analytic Geometry	5	0	5	MATH401, MATH402
SOCI400	Sociology	3	0	3	
			TOTAL	17	

Note: For batch 2016 onwards, a minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
CENG523	Advanced Programming	2	2	3	CENG511
ENGL403	Speech and Oral Communication	2	2	3	ENGL402
MATH501	Integral Calculus with Differential Equations	5	0	5	MATH406
PHYS501	University Physics 1	2	2	3	MATH406
SCIE400	Biology	2	2	3	
			TOTAL	17	

SECOND YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
ENVS400	Environmental Science	3	0	3	SCIE400
ENGL502	Technical Writing	3	0	3	ENGL402
ENGG410A	Engineering Drawing	2	2	3	
ENGG520	Engineering Materials	3	0	3	CHEM400
MATH503	Discrete Mathematics	3	0	3	MATH401
PHYS502	University Physics 2	2	2	3	PHYS501, MATH501
			TOTAL	18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
ENGG531	Electric Circuit Theory 1	2	2	3	MATH501, PHYS502
ENGG532	Thermodynamics	3	0	3	PHYS501
HUMR400	Human Rights	3	0	3	SOCI400
MATH409	Probability and Statistics	3	0	3	MATH503
MATH502	Advanced Mathematics	3	0	3	MATH501
PHYS503	University Physics 3	2	2	3	PHYS502
			TOTAL	18	

Note: For batch 2016 onwards, a minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
ENGG521	Engineering Mechanics	3	0	3	PHYS501
ENGG522	Engineering Economy	3	0	3	MATH406
ENGG534	Electronics 1	2	2	3	ENGG531
ENGG611	Electric Circuit Theory 2	2	2	3	ENGG531
MATH504	Multivariate Calculus	2	2	3	MATH501
MATH505	Numerical Methods and Analysis	2	2	3	MATH502
		TOTAL		18	

THIRD YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
CENG611	Data Communication and Networking 1	2	2	3	CENG411
ENGG535	Fluid Mechanics	3	0	3	MATH406
ENGG613	Electronics 2	2	2	3	ENGG534
ENGG615	Electromagnetics and Electrical Machines	3	0	3	ENGG611
ENGG627	Logic Circuit, Switching Theory and Programmable Logic Devices	3	2	4	ENGG534
MATH506	Linear Algebra	2	2	3	MATH504
		TOTAL		19	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
ENGG501	Safety Engineering	2	0	2	ENGG611
ENGG533	Strength of Materials	3	0	3	ENGG521
MECH610	Pneumatics and Electro-Pneumatics	2	2	3	ENGG535, ENGG627
ENGG614	Control Systems	2	2	3	ENGG611
MECH631A	Power Electronics	3	2	4	ENGG613
MECH633	Introduction to Fuzzy/Neural System	3	2	4	ENGG627 MATH503
		TOTAL		19	

Note: For batch 2016 onwards, a minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
MATH507	Optimization Methods	3	0	3	MATH505
MECH621	Linear Systems	2	2	3	ENGG614
MECH623	Hydraulics and Electrohydraulics	3	2	4	ENGG535, ENGG627
MECH624	Programmable Logic Controllers	3	2	4	MECH610
MECH641	Process Instrumentation and Control	3	2	4	ENGG532, ENGG614
			TOTAL	18	

FOURTH YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
ENGG639	Professional Ethics and Engineering Laws	3	0	3	ENGG501
MECH639	Microcontrollers	2	2	3	ENGG627
MECH642	Machine Vision	3	2	4	MECH621
MECH643	Robot Kinematics, Dynamics and Control	3	2	4	MECH631, MECH621
MECH644	Modular Production System	3	2	4	MECH624
			TOTAL	18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
ENGG638	Engineering and Project Management	3	0	3	ENGG522
MECH651	Industrial Attachment	0	6	6	MECH644
MECH652	Mechatronics Engineering Design Project A	0	6	3	MECH641, MECH643
			TOTAL	12	

Note: For batch 2016 onwards, a minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
MECH645	Technopreneurship	3	0	3	ENGG638
MECH653	Major Elective 1	2	2	3	SEE LIST BELOW
MECH661	Mechatronics Engineering Design Project B	0	6	3	MECH652 ENGG638
MECH662	Major Elective 2	2	2	3	SEE LIST BELOW
		TOTAL		12	
		Grand Total		**204**	

ELECTIVE COURSES

MAJOR ELECTIVE 1

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
MECH653A	Data Communication and Networking 2	2	2	3	CENG611
MECH653C	System Modeling and Simulation	2	2	3	ENGG614
MECH653D	Digital Control Systems	2	2	3	ENGG614

MAJOR ELECTIVE 2

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE/S
MECH662A	Wireless Communications	2	2	3	CENG611
MECH662C	Digital Signal Processing	2	2	3	MECH639
MECH662D	Power Plant	2	2	3	ENGG532

Note: For batch 2016 onwards, a minimum CGPA of 2.00 out of 4.00 or "C" is a requirement for graduation eligibility

College of Engineering_

Bachelor of Science in Informatics Engineering (BSIE)

HEC – IA
ACCREDITED

University of Technology Bahrain

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College of Engineering

Bachelor of Science in Informatics Engineering (BSIE)

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كلية الهندسة

بكالوريوس العلوم في هندسة تقنية المعلومات

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Introduction

This programme contains competencies and skills in computing, electronics, communications and information technology. This has been designed to prepare the graduates for the challenges of their chosen careers. Thus, this adequately equips the students with the appropriate theoretical and practical skills necessary for industry and engineering. The College continues to develop industrial partnerships and linkages as well as, creating opportunities for our future engineering graduates to become more responsive to the changing needs in engineering.

The Bachelor of Science in Informatics Engineering is an engineering programme which combines Information Technology (IT) with engineering concepts. The programme intends to produce graduates who can practice as successful Informatics Engineers for the advancement of society and promote professionalism in informatics engineering practice.

Degree Facts

* Students will gain a wide range of transferable skills relevantto employability and personal development

* The duration of the programme is four (4) years

* The medium of instruction in all courses is English

* The number of credits require to graduate is 204 units

* A minimum CGPA of 2.0 is required for graduation

Entry Requirements

A new student applicant is required to submit all of the following documents together with the completely filled out application form:

* UTB Placement Test (Oxford Online Placement Test) Results;

* Original Secondary School Certificate or its equivalent together with an English translation of the transcript and / or an "A" level certification from the Ministry of Education.

* A photocopy of the applicant's passport or at least 2 valid identification cards and 4 copies of recent passport-size photographs.

* Certificate of good moral character from last school attended and graduated from.

* If the applicant has taken any Standardized English Test such as: TOEFL score of at least 500 (173 CBT, 61 IBT) or its equivalent in a standardized English language test, such as 5.5 IELTS or other standardized internationally recognized English test approved by the Ministry of Education, the applicant may be exempted from taking the English foundation courses.

* 51.500 BHD for each credit unit.

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المقدمة

بكالوريوس العلوم في هندسة تقنية المعلومات هو برنامج هندسي يقوم بدمج تكنولوجيا المعلومات والمفاهيم الهندسية. يحتوي هذا البرنامج على الكفاءات والمهارات في مجال الحوسبة والإلكترونيات والاتصالات وتكنولوجيا المعلومات. ويغطي هذا المجال تطوير المنتجات الهندسية الذكية والعمليات التي تم تمكينها من خلال دمج تكنولوجيات الحاسب الآلي، وأنظمة التحكم و هندسة البرمجيات. ويطمح البرنامج في تقديم خريجين يكون بإمكانهم ممارسة الهندسة المعلوماتية بشكل ناجح من أجل تقدم المجتمع وتعزيز المهنية في ممارسة الهندسة المعلوماتية

حقائق تتعلق بالدرجة العلمية

* يزود البرنامج الطلبة بقدر كبير من المهارات الخاصة المتعلقة بإمكانية التحاقهم بالوظائف والتطوير الشخصي.

* مدة البرنامج (أربعة) أعوام.

* اللغة الانجليزية هي لغة التعلم في جميع المقررات التعليمية.

* عدد الساعات المطلوبة لتخرج الطالب هي 204 ساعة معتمدة.

* يجب أن لا يقل المعدل التراكمي عن 2.0 ساعة معتمدة.

متطلبات الالتحاق

على الطالب المستجد تقديم كافة الوثائق التالية مع تعبئة نموذج طلب الألتحاق:

* على الطالب اجتياز اختبار القبول بجامعة البحرين للتكنولوجيا (امتحان اكسفورد اونلاين).

* أصل الشهادة الثانوية أو ما يعادلها مع تقديم نسخة مترجمة منها إلى اللغة الأنجليزية أو شهادة المستوى (A Level).

* صورة من جواز سفر الملتحق أو بطاقتين شخصيتين للهوية على الأقل ساريتا العمل بهما وأربع صور فوتوغرافية حديثة بحجم صور جواز السفر.

* شهادة حسن السيرة والسلوك من آخر مدرسة حضرها وتخرج منها.

* في حالة اجتياز الطالب لأي اختبار للغة الإنجليزية مثل: توفل مع حصوله على 500 على الأقل (IBT، 61 CBT 173) أو ما يعادلها من اختبارات اللغة الإنجليزية مثل أيلتس5.5 أو أي اختبار آخر للغة الإنجليزية معترف بها عالميًا وتكون معتمدة من قبل وزارة التعليم، يتم إعفاء الطالب من دراسة المقررات التعليمية الأساسية للغة الإنجليزية.

* الرصيد الأصلي للرسوم غير مسترجعة لطلب التقديم.

* شهادة طبية صادرة من مركز طبي معتمد من وزارة التربية والتعليم.

* على الطالب سداد رسوم تعادل 51.5 دينارا بحرينيا لكل ساعة معتمدة.

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Careers

Graduates of Informatics Engineering can pursue a career as Network Engineer; Control Engineer; Network Analyst/Administrator; Production Engineer; Systems Developer; Computer/Software Engineer; Sales Engineer; Technical Instructor/Trainer. In addition, the Programme can lead graduates for postgraduate degrees in engineering.

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الحياة العملية بعد التخرج

يستطيع خريجو هندسة تقنية المعلومات مزاولة العمل في عدة مجالات أهمها: العمل كمهندس شبكة ؛ مهندس تحكم ؛ محلل \ إداري شبكات ؛ مهندس إنتاج ؛ مطور أنظمة ؛ مهندس حاسب \ برمجة ؛ مهندس مبيعات ؛ معلم\مدرب تقنيات.بالاضافة إلي ذلك يمكن للبرنامج منح الخريجين درجات علمية بعد التخرج في مجال الهندسة.

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BACHELOROF SCIENCEININFORMATICS ENGINEERING(BSIE)
CURRICULUM PLAN EFFECTIVE SY2022-2023

REMEDIAL CLASSES

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT UNITS	PRE-REQUISITES
ENGL501	Speaking and Listening	9	0	0	
ENGL504	Grammar and Vocabulary	9	0	0	
MATH510	Remedial Mathematics	5	0	0	

FIRST YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
ARAB600	Arabic Language	3	0	3	
CHEM611	General Chemistry	2	2	3	
IENF611	Introduction to Computing	2	2	3	
ENGL611	English Communication Skills 1	3	0	3	
EUTH500	Euthenics	1	0	0	
MATH631	Calculus 1	5	0	5	
			TOTAL	17	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF621	Computer Programming	2	2	3	IENF611
ENGL621	English Communication Skills 2	3	0	3	ENGL611
HIST600	History of Bahrain and GCC Region	3	0	3	
MATH711	Calculus 2	5	0	5	MATH631
HUMR600	Human Rights	3	0	3	
			TOTAL	17	

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THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF631	Advanced Programming	2	2	3	IENF621
ENGL631	Speech and Oral Communication	2	2	3	ENGL621
SCIE631	Biology	2	2	3	
MATH621	Probability and Statistics	3	0	3	MATH631
PHYS631	University Physics 1	2	2	3	MATH631
ENVS711	Environmental Science	3	0	3	
			TOTAL	18	

SECOND YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF711	Data Structures and Algorithm	2	2	3	IENF631
ENGL711	Technical Writing	3	0	3	ENGL621
ENGG711	Engineering Drawing	2	2	3	ENGG711
MATH722	Advanced Mathematics	3	0	3	MATH711
MATH622	Discrete Mathematics	3	0	3	MATH631
PHYS711	University Physics 2	2	2	3	PHYS631, MATH711
			TOTAL	18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
ENGG721	Electric Circuit Theory 1	2	2	3	PHYS711
IENF721	Principles of Communications	2	2	3	PHYS631
IENF722	Database Systems	2	2	3	IENF711
IENF723	Introduction to Data Science	2	2	3	IENF711
MATH731	Multivariate Calculus	2	2	3	MATH711
PHYS722	University Physics 3	2	2	3	PHYS711
			TOTAL	18	

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THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
ENGG734	Signals and Systems	2	2	3	ENGG721
ENGG733	Engineering Economy	3	0	3	MATH621
ENGG731	Electronics 1	2	2	3	ENGG721
ENGG732	Electric Circuit Theory 2	2	2	3	ENGG721
MATH732	Numerical Methods and Analysis	2	2	3	MATH722
MATH733	Linear Algebra	2	2	3	MATH731
			TOTAL	18	

THIRD YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
ENGG813	Digital Logic Design	2	2	3	ENGG731
IENF811	Computer Networks 1	2	2	3	IENF721
ENGG812	Electronics 2	2	2	3	ENGG731
IENF812	Artificial Intelligence	2	2	3	IENF723
ENGG811	Electromagnetics	3	0	3	ENGG732
MATH821	Optimization Methods	3	0	3	MATH732
			TOTAL	18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF821	Computer Networks 2	2	2	3	IENF811
IENF822	Advanced Digital Logic Design	2	2	3	ENGG813
IENF823	Computer Organization and Architecture	2	2	3	ENGG813
IENF824	Power Electronics	2	2	3	ENGG812
ENGG821	Control Systems	2	2	3	ENGG734
ENGG831	Engineering and Project Management	3	0	3	ENGG733
			TOTAL	18	

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF831	Computer Networks 3	2	2	3	IENF821
IENF832	Operating System	2	2	3	IENF722
IENF833	Machine Vision	2	2	3	IENF812

IENF834	Systems Analysis and Design	2	2	3	IENF722
IENF835	Cloud Computing	2	2	3	IENF821
ENGG842	Safety Engineering	2	0	2	IENF824
		TOAL		17	

FOURTH YEAR

FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF841	Digital Systems Design using HDL	2	2	3	IENF822
IENF842	Wireless Communication Systems	2	2	3	IENF821
ENGG841	Technopreneurship	3	0	3	ENGG831
IENF843	Enterprise Networking	2	2	3	IENF821
IENF844	Microcontroller and Embedded Systems	2	2	3	IENF823
ENGG851	Professional Ethics and Engineering Laws	3	0	3	ENGG831
			TOTAL	18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF851	Software Engineering	2	2	3	IENF832
IENF852	Major Elective 1	2	2	3	IENF821
IENF853	Major Elective 2	2	2	3	IENF832
IENF854	Major Elective 3	2	2	3	ENGG821
IENF855	Informatics Engineering Design Project A	0	6	3	IENF844
IENF856	Robot Kinematics, Dynamics and Control	2	2	3	ENGG821
			TOTAL	18	

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF861	Industrial Attachment	0	6	6	IENF844
IENF862	Informatics Engineering Design Project B	0	6	3	IENF855
		TOTAL		9	
		Grand Total		**204**	

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ELECTIVE COURSES

MAJOR ELECTIVE 1

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF852A	Cryptographic Systems	2	2	3	IENF821
IENF852B	Network Security	2	2	3	IENF821
IENF852C	Ethical Hacking	2	2	3	IENF821

MAJOR ELECTIVE 2

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF853A	Microprocessor Systems	2	2	3	IENF832
IENF853B	Data Mining	2	2	3	IENF832
IENF853C	Parallel and Distributed Computing	2	2	3	IENF832

MAJOR ELECTIVE 3

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT Units	PREREQUISITE(S)
IENF854A	Special Topics in Computer Engineering	2	2	3	ENGG821
IENF854B	Digital Control Systems	2	2	3	ENGG821
IENF854C	Industrial Control Systems Design	2	2	3	ENGG821