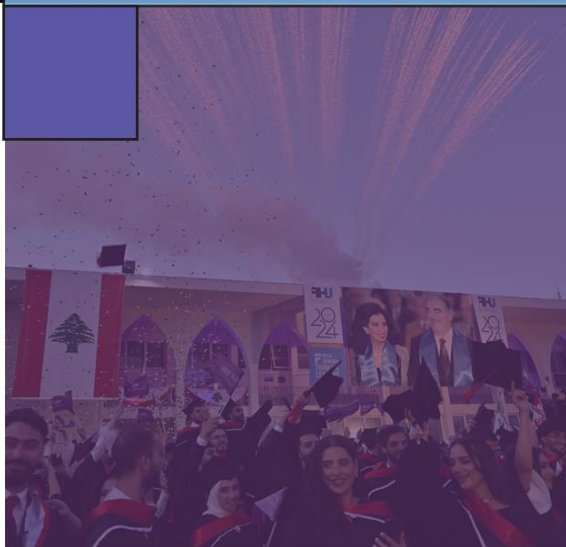
Rafik Hariri University
جامعة رفيق الحريري

GRADUATE CATALOG

2024
2025



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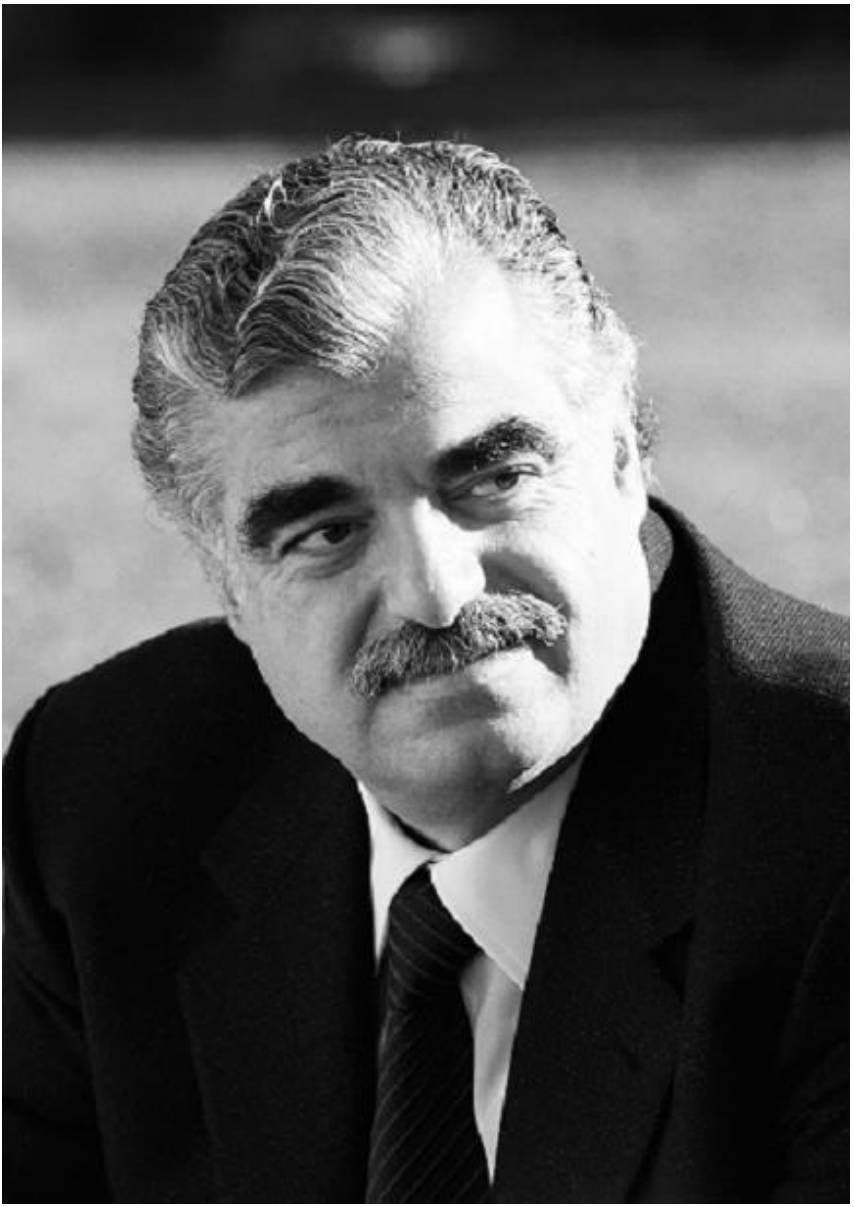


"إن أملي هو فتح أبواب الجامعات والمعاهد العليا أمام المواهب والكفاءات المغمورة"

Notice

The information in this catalog applies to the academic year 2024-2025 as of September 4, 2024. The University reserves the right to make changes to the programs, course offerings, academic requirements, and teaching staff as deemed to be in the best interest of students and without prior notice.

This catalog conforms to the related Lebanese laws and Directorate of Higher Education (DoHE) rules and regulations. In the event of a contradiction, the Lebanese laws and DoHE rules and regulations take precedence.

Student Responsibility for Catalog Information

Students are responsible for reading, understanding, and adhering to the information in this catalog. Failure to comply with the stated university, college, and program regulations will not exempt the students from the ramifications **or** penalties that could be incurred due to ignorance.

Contact Information

P.O. Box 10 Damour

Chouf 2010

Mechref, Lebanon

Telephone: (961) 5 603090

Fax: (961) 5 601830

E-mail: info@rhu.edu.lb

You can also view this catalog on the RHU website at https://www.rhu.edu.lb/academics/student-catalog.

TABLE OF CONTENTS

MESSAGE FROM THE PRESIDENT 9

BOARD OF TRUSTEES 11

ACADEMIC CALENDAR 2024-2025 12

DIRECTORY 14

THE UNIVERSITY OVERVIEW 15

UNIVERSITY ADMINISTRATION 16

- BOARD OF DEANS 16
- ADMISSION 16
- COMMUNICATION AND ALUMNI RELATIONS 16
- FINANCE DEPARTMENT 16
- HUMAN RESOURCES DEPARTMENT 16
- INFORMATION TECHNOLOGY 16
- LIBRARY 16
- QUALITY ASSURANCE AND INSTITUTIONAL ADVANCEMENT 16
- REGISTRAR 17
- STUDENT AFFAIRS 17
- CAMPUS FACILITIES 17

THE UNIVERSITY 18

- HISTORY 18
- VISION 18
- MISSION 18
- VALUES 19
- LOCATION 19
- CLIMATE 20
- DIRECTIONS AND MAP 20

GRADUATE PROGRAMS AND DEGREES 22

ADMISSION 23

- ADMISSION CRITERIA 23
- GRADUATES OF TECHNICAL INSTITUTES 25
- TRANSFER OF CREDITS 25

Application Package 26
Payment Methods 26

REGISTRAR'S OFFICE 30

Registration 30
National Social Security Fund (NSSF) 31
Passport and Visa 31

ACADEMIC REGULATIONS 32

Period of Study 32
Orientation 32
Supervision 32
Courses and Grades 32
Course Load 33
Plan of Study 33
Academic Standing 33
Graduate Assistantship 34
Graduation Requirements 34

LIBRARY 35

Information Resources 35
Organization of Materials 36
Library Services 36
Library Clearance 37

INFORMATION TECHNOLOGY DEPARTMENT 38

Operation and Network Services 38
Management Information System (MIS) 38
University Website 39
Instructional and Classroom Technologies 39
IT Helpdesk Support Services 39

QUALITY ASSURANCE AND INSTITUTIONAL ADVANCEMENT 41

STUDENT AFFAIRS 42

Cultural, Social, and Artistic Activities 42
Counseling and Coaching 42
Student Representations 42
Student Housing 43

Athletics and Recreation 43
Ushers 43
Transportation 43
Student Centers 44
Food Services 44
Health Care 44
Student Rights and Responsibilities 44
Work Study Program 45
Financial Aid Program 46

RESEARCH 47

COLLEGE OF BUSINESS ADMINISTRATION (CBA) 48

Officers of the College 50
Contact Information 50
History and Overview 50
Vision 51
Mission 51
Core Values 51
College Learning Goals 52

MBA PROGRAM 53

Program Overview 53
Mission 53
Specialization Options 53
Admission Requirements 55
Program Requirements 55
MBA Research Project 56
Study Plans 56
Contact Information
Courses Descriptions 57
Faculty List 63

COLLEGE OF ENGINEERING (CE) 64

Officers of the College 65
65
History 65
Overview 65
Vision 66

Mission 66
Goals 66
Values 66
Academic Programs 66
Program Codes 66
Admission Requirements 67
Degree Requirements 67
Graduate Studies Options 68
Master Project 69
Master Thesis 69
Study Plans 71
Civil Engineering Program 72
Electrical Engineering Program 77
Computer and Communications Engineering Program 81
Biomedical Engineering Program 85
Mechanical Engineering Program 91
Mechatronics Engineering Program 96
Faculty List 100
GRADUATE STUDIES FORMS 102

MESSAGE FROM THE PRESIDENT

As we prepare to celebrate our silver anniversary and lay the foundation of our golden anniversary and beyond, a new dawn is rising over Rafik Hariri University (RHU). This dawn brings new winds of change and a change designed to transform RHU into a stronger and more formidable institution.

The waves of change are at full speed and in constant motion. Soon, RHU will conclude its self-assessment journey and continue reinventing itself and its business model to become a sustainable, agile, and nimble institution.

Guided by a strong vision handed to us by our founder, Prime Minister Rafik Hariri, and overseen by our astute President of the Board of Trustees, Mrs. Nazik Rafik Hariri, RHU affirms its determination to embrace best practices and to become a leading institution of higher learning in Lebanon, the region and beyond.

At RHU, the student is our number one priority. We are determined to shape futures, impact life journeys, create hopes and opportunities, and inspire students to achieve their dreams. We want students to lead full, rich lives while radiating positive energies. RHU offers more than a great learning experience. RHU broadens horizons and challenges assumptions.

RHU provides world-class curricula in all of its schools. Our academic programs are second to none and are accredited by the highest bodies in their respective disciplines (ABET, ACBSP, and many more). The RHU Board of Trustees and the institution's leadership are seriously exploring the option of obtaining university-wide accreditation from the top higher education bodies in the United States.

RHU's positive work environment has enabled us to see, hear, and engage one another in a constructive dialogue about the present and future of the university. Such a collegial environment enables our students to observe, acquire, and learn about needed soft skills (communication, thoughtful inquiry, and responsible leadership) that are increasingly vital in modern workplaces.

Our world-class faculty will continue to raise the bar for academic excellence. New courses, areas of study, and specializations are offered, all with the intent to equip our students with needed skill sets (quantitative, analytical, technical, digital, and intellectual) to be marketplace-ready.

Our alumni continue to make RHU proud. They are entrepreneurs, scientists, researchers, and innovators, and some assume top faculty positions at world-leading institutions. I am humbled by the collective and ongoing contributions of RHU's faculty, staff, students, alumni, and administrators to position RHU as a beacon of hope and excellence.

RHU is determined to build bridges and form new partnerships and strategic alliances with all its internal and external stakeholders. The mission of RHU shall be an embedded and integral part of our soles. In due time, we shall all become the change agent Prime Minister Hariri aspired for, capable of turning around individuals who make the world a better place for us all.

I encourage you to benefit from our open-door policy. Visit our campus, drop by the office of the president, reach us electronically, talk to an advisor, and learn more about the opportunities available to you at Rafik Hariri University.

Sincerely,

Said M. Ladki
President

BOARD OF TRUSTEES

Mrs. Nazik Rafik Hariri, Chairperson

HE Charles Rizk

HE Ghazi Youssef

HE Adnan Mroueh

Dr. Daoud Sayegh

Mr. Mohamad El-Hout

Mrs. Salwa Siniora Baassiri

Mr. Fadi Fawaz

Mr. Maroun Al Asmar

Mr. Adib Bassatni

Mr. Ahmad Hijazi

Mr. Ouday El-Sheikh

Prof. Said Ladki, President Rafik Hariri University

ACADEMIC CALENDAR 2024-2025

Fall Semester

Tue	Aug 27	Orientation and Registration / New Students Fall 2024
Fri	Aug 30	Deadline Payment of Fall 2024 Tuition and Fees
Mon	Sep 2	Classes Begin
Mon - Tue	Sep 9-10	Drop and Add Period
Sun	Sep 15	Prophet's Birthday/ Holiday*
Fri	Nov 1	Founder's Day
Mon - Fri	Nov 4-8	Advising Week / Spring 2025 for Continuing students
Fri	Nov 8	Last Day to Withdraw from Courses
Mon - Fri	Nov 11-15	Registration Week / Spring 2025 for Continuing student
Fri	Nov 22	Independence Day / Holiday
Wed – Thu	Nov 20 - 21	Orientation and Registration / New Students Spring 2025
Wed	Dec 11	Last Day of Classes
Thu - Fri	Dec 12-13	Reading Period
Sat – Sat	Dec 14-21	Final Examinations Period
Wed	Dec 25	Christmas / Holiday
Wed	Jan 1	New Year / Holiday

Spring Semester

Fri	Jan 3	Deadline Payment of Spring 2025 Tuition and Fees
Mon	Jan 6	Armenian Christmas / Holiday
Mon	Jan 13	Classes Begin
Mon – Tue	Jan 20-21	Drop and Add Period
Sun	Feb 9	Saint Maroon's Day / Holiday
Fri	Feb 14	H.E.P.M. Rafik Al Hariri Commemoration Day
Mon – Fri	Mar 17-21	Advising Week / Summer–Fall 2025 for Continuing student
Fri	Mar 21	Last Day to Withdraw from Courses
Mon – Tue	Mar 24 - Apr 1	Registration Week / Summer –Fall 2025 for Continuing student
Tue	Mar 25	Annunciation Day / Holiday
Sun - Mon	Mar 30-31	Eid El Fitr/ Holiday*
Fri – Mon	Apr 18-21	Easter Latin & Greek Orthodox / Holiday
Thu	Apr 24	Last Day of Classes
Fri	Apr 25	Reading Period
Sat – Sat	Apr 27 – May 3	Final Examinations Period
Thu	May 1	Labor's Day/ Holiday
Fri	May 23	Deadline Payment of Summer 2025 Tuition and Fees

Sat	Jun 14	Commencement Exercise (*Tentative*)

Summer Semester

Tue	May 27	Classes and Co-op Work Experience Begin
Thu	May 29	Drop and Add Period
Fri - Sun	Jun 6-8	Eid El Adha/ Holiday*
Thu	Jun 26	Hijra New Year/ Holiday*
Thu	Jul 3	Last Day to Withdraw from Courses / Co-op
Sat	Jul 5	Ashoura Day / Holiday*
Thu	Jul 17	Classes and Co-op Work Experience End
Mon - Tue	Jul 21-22	Final Examinations Period
Fri	Aug 15	Assumption Day / Holiday

* Tentative dates are pending moon sightings.

P.S. Any changes in public and religious holidays shall be reflected on our calendar in due time.

DIRECTORY

	Location	Extension
President	Block E	400-401
President's Office	Block E	441/442
Vice President for Academic Affairs	Block E	404
Vice President for Development and Information Technology	Block E	403
Vice President for Administration and Finance	Block E	402
Admissions Office	Block E	405/406/407
College of Business Administration	G 101 J	301
College of Engineering	C 103	501
College of Arts and Sciences	I 201	701
Communication and Alumni Relations	B 201	754/755
Dorm Supervisor	A 112	112
Finance Department	Block E	424/417-419
Graduate Studies and Research	Block B	611
Gymnasium	Block G	330
Health Clinic	I 119	751
Help Desk	Block G	333/334
Human Resources	Block E	787/786
Library	Block E	434/435
Media Center		603/755
Operator	Block E	0
Purchasing and Procurement Department	Block E	743/744
Quality Assurance and Institutional Advancement	Block E	443
Registrar's Office	B 102	615/618
Security		290
Store	Block I	752
Student Affairs Office	Block E	770/777
Support Services Department	I 110	740/741

THE UNIVERSITY OVERVIEW

UNIVERSITY ADMINISTRATION

Said Ladki, President

Mahmoud Halablab, Vice President for Academic Affairs

Hisham Kobrosli, Vice President for Development and Information Technology

Ibrahim Akkawi, Vice President for Administration and Finance

Board of Deans

Mahmoud Halablab, Vice President for Academic Affairs

Toufic Hijazi, Dean – College of Engineering

Jamil Hammoud, Dean – College of Business Administration

Houssam Salameh, Acting Dean –College of Arts and Sciences

Admission

Zeina Tannir, Director

Communication and Alumni Relations

Rafal Tabbaa Khayat, Director

Finance Department

Marwa Khanji, Manager

Human Resources Department

Doriah Naboulsi, Associate Director

Information Technology

Wassim Mallah, Associate Director of ERP Systems and Applications

Abdul Ghani Baba, Associate Director of Infrastructure and Security

Lina Basho, IT HelpDesk Support Manager

Library

Bassima Katerji, Circulation Librarian

Quality Assurance and Institutional Advancement

Mirna Talhouk, Associate Director

Registrar

Nidal Khalaf, Registrar

Student Affairs

Sahar Hallak, Assistant Director of Student Affairs

Campus Facilities

Ahmad Sabeh Ayoun, Director

THE UNIVERSITY

History

Establishing an educational institution financially and geographically accessible to all was a pressing dream for His Excellency Prime Minister Rafik Hariri. In the early 1980s, PM Hariri chose Kfarfalous, an area between the South, Bekaa, and the mountains, to establish a hospital and a university in collaboration with the University of Saint Joseph. However, the 1982 Israeli invasion destroyed the university and stole its equipment.

In 1984, the dream took a different turn with the establishment of the Rafik Hariri Foundation. It is a non-profit organization whose primary goal is to provide Lebanese youth a chance for higher education in local and international universities. Around 33,000 Lebanese students benefited from the University Loan Program of the Rafik Hariri Foundation and pursued their education in Lebanon, Europe, North Africa, and North America.

After the civil war in Lebanon ended, the Rafik Hariri Foundation decided to revive the dream of establishing an affordable and accessible university. The undertaking of such a massive project called for the help of experts from a country that had made significant strides in education. Although several educationally advanced countries were considered, Canada was eventually chosen for this collaboration. The programs of study at Rafik Hariri University were developed in association with several Canadian institutions, including the Canadian Bureau of International Education, the Canadian International Development Agency, Capilano University, and Memorial University.

Rafik Hariri University opened its doors for the first time on September 15, 1999, with the College of Business Administration, following the Presidential Decree of 1947. It began with an initial enrolment of 75 students. After the Colleges of Engineering and Sciences and Information Systems were established, RHU was granted university status on June 19, 2006, by Decree Number 17192.

Vision

RHU envisions becoming a beacon of knowledge, a brand for academic distinction, and a force of meaningful transformation. It strives to foster quality, institute authentic learning conditions, and support purposeful research to advance knowledge and nurture leaders capable of driving development and contributing to the enrichment of the community - immediate and beyond.

Mission

RHU shall institute quality education by committing to due process, academic excellence, and distinction. It shall set up conditions conducive to farming dreams, stimulating imagination, and cultivating passion for lifelong learning. It shall instill the

values of responsible behavior, tolerance, and freedom of self-expression and **thought** and align learning outcomes with emergent community needs to transcend students' potential, possibilities, and contributions beyond time and distance.

Values

When it comes to values, RHU does not merely pay lip service. It is indeed deeply committed to several core values that it upholds and fulfills:

Shared Governance. Enable all RHU constituents to participate in shaping the provision of quality higher education.

Excellence. Offer a meaningful contribution to developing knowledge and promoting teaching excellence and administrative support.

Integrity. Sustain a community of trust and operate with fairness, honesty, openness, and the highest ethical standards.

Diversity and Tolerance. Create a community that advocates and promotes diversity and tolerance as a priority in academic and civic life.

Community Service. Show commitment to serving our community by responding to the needs and concerns of all stakeholders.

Purposeful Learning. Engage students in a learning experience congruent to individual aspirations and community needs.

Location

RHU enjoys a superb location atop a seaside mountain overlooking the Mediterranean Sea in Mechref, Damour, a short drive from Beirut, Saida, and Mount Lebanon, in the heart of a prestigious gated community.

The RHU campus is 20 kilometers south of Beirut. It covers an area of 54,000 square meters and comprises nine buildings. Seven buildings are used for educational purposes, one for administration and one for faculty and student residences. The campus also features basketball and volleyball courts, parking areas, a long row of Washingtonian Palm trees, vegetable gardens, a greenhouse, and beautiful open green areas.

RHU began its vegetable gardens in 2021 and selected locations behind Block A—Dormitory Facility building and Block G—College of Business Administration. The landscaping team at RHU leveled the ground reasonably to prevent soil erosion and built a greenhouse for growing warm-season vegetables.

RHU's decision to grow crops is part of its sustainable campus initiative and its efforts to care for the environment. In addition to the aesthetic benefits, plants offer numerous

advantages, such as carbon sequestration, oxygen production, flood reduction, and improved air quality. This also helps reduce the impact of global warming.

RHU's electricity supply comes via three routes: Mains Electrical from EDL Grid, self-ran Diesel-oil Generators, and the daytime usage RHU Solar-PV plant. A 100 kW rated solar PV plant is located on the top of three of RHU's buildings, Blocks F, G, and H.

Climate

The Mechref Village in Damour is a residential project that spans over altitudes ranging from 30 to 560 meters above sea level. The climate is moderately cold from December to March and hot from June to September. Although the classrooms have heaters and air conditioners, students are advised to wear warm clothing during the cold season.

The lush greenery of the RHU campus creates a refreshing atmosphere and further motivates students to pursue their academic goals. The green lawns provide ample space for students to study, relax, or socialize. The mosaic of blue, green, and white—a blue sky, green lawns, and white buildings—of the RHU campus is itself magnificent.

Directions and Map

From Beirut

Take the Beirut Saida Highway south (towards Saida)

Take the Damour main exit (towards Deir Al-Qamar)

Go left on the roundabout (follow the Mechref Village road sign)

Drive for 300 meters

Take a right at the Mechref Village main gate

Follow the RHU signs leading to the Campus

From Saida

Take the Beirut Saida Highway north (towards Beirut)

Take the Damour main exit (towards Deir Al-Qamar)

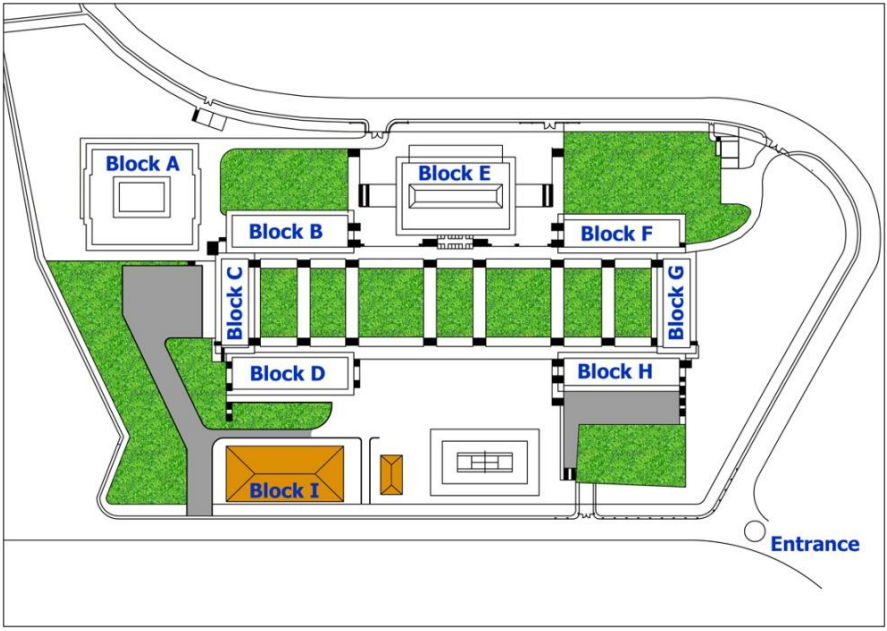
Go left on the roundabout (follow the Mechref Village road sign)

Drive for 300 meters

Take a right at the Mechref Village main gate

Follow the RHU signs leading to the Campus

Map of the RHU Campus



GRADUATE PROGRAMS AND DEGREES

Graduate programs at RHU aim to provide qualified students with a graduate studies experience that helps them realize their potential as they seek to further their education. The College of Business Administration grants a general Master of Business Administration (MBA) degree and a Master of Business Administration (MBA) in Oil and Gas. The College of Engineering grants Master of Science (MS) degrees in six engineering programs

The number of credits to earn an MBA degree is 36 after completing the 99 credits required for a Bachelor of Business Administration degree.

The minimum number of credits to earn an MS degree in engineering depends on the earned undergraduate degree and whether a student follows a thesis or a non-thesis path. According to the Ministry of Education and Higher Education (MEHE) decree, an MS granting program must ensure that a student completes at least 155 credits beyond the Lebanese Baccalaureate or its equivalent. Therefore, a student who earns a Bachelor of Science degree from a 114-credit program must complete a minimum of 41 credits to earn a thesis-based MS degree. Meanwhile, a student who earns a Bachelor of Engineering degree from a 146-credit program (excluding Co-op credits) must complete a minimum of 9 credits to earn a thesis-based MS degree. Non-thesis track students must complete three additional credits for 158 credits beyond the Lebanese Baccalaureate or its equivalent.

In addition to the above requirements, students who have earned a Bachelor of Engineering Technology (BET) degree from an IUT must take 24 credits of remedial courses for the BET degree to become equivalent to a Bachelor of Science degree in engineering. An additional 36 graduate credits are required to earn an MS degree.

The programs and the number of credits required for graduation beyond a bachelor's degree are summarized below.

Minimum MS degree Requirements			
Undergraduate studies		**MS Degree Minimum Credits Requirements**	
Degree	**Credits Earned**	**Thesis Option**	**Non-Thesis Option**
Bachelor of Science	114 Credits	48 Credits	51 Credits
Bachelor of Engineering	147Credits	15 Credits	18 Credits

Details on the existing graduate programs, graduation requirements, and pertinent regulations are presented in this catalog.

ADMISSION

Zeina Tannir, Director of the Admissions Office
Sawsan Sheikh Younes, Associate Director of the Admissions Office
Block E
Phone: (961) 5 603090; Ext 405/406/407
E-mail: admissions@rhu.edu.lb
www.rhu.edu.lb/admission

Admission to graduate programs is based on merit. It is offered to applicants holding undergraduate degrees from RHU or other recognized institutions. Students can apply to graduate studies for the fall or spring semesters. Applications are available at the Admissions Office or may be downloaded from RHU's website: www.rhu.edu.lb

The Admissions Office receives admission applications, communicates with the applicant to complete the application dossier, responds to inquiries, coordinates with the academic units and the University Graduate Studies and Research Committee, and conveys admission decisions and related stipulations to the applicant. Admission to a graduate program is granted competitively, and early admission may be granted to students with strong undergraduate records. Applications may be submitted via mail, online, or in person. For details on admission requirements, application deadlines, procedures, and fees for various university programs, please refer to the admission section in this catalog or visit www.rhu.edu.lb/admission/.

Admission Criteria

An applicant with a bachelor's degree from RHU or another recognized institution will be admitted to graduate studies at RHU if the college the applicant proposes to study deems the applicant has a high potential for success in the graduate program. Applications are reviewed, and final recommendations are made by the concerned college on a case-by-case basis. An applicant with a bachelor's degree from RHU is exempted from taking the GRE or the GMAT.

Depending on the record, an applicant is admitted either on a regular basis or on probation.

Regular Admission

Regular admission to a Master's program is granted to a student who:

- Attained an average of 80 at RHU or its equivalent at a recognized institution as determined by the college;
- Adequate English proficiency as established by the University;
- At least two letters of recommendation from faculty or supervisors familiar with the applicant's academic ability.

Note that the English Proficiency requirement may be waived for students with bachelor's degrees from an English teaching institution.

Admission on Probation

Acceptance on Probation may be granted to an applicant who meets the regular admission requirements stated above but has an undergraduate CGPA below 80 at RHU or equivalent at other universities as determined by the college. Students admitted on probation may be requested to take background courses to strengthen their prospects of success in graduate studies. Credits for background courses do not count toward completing the graduation requirements but are included in the CGPA.

A student accepted on probation must complete at least 12 credits of background (in case they are required) and graduate level courses, or nine credits of graduate courses, in no more than two regular semesters, pass all courses, and attain a CGPA of at least 80.

Special Admission Consideration

A holder of a bachelor's degree who does not meet the RHU graduate admission criteria but has considerable practical experience is requested to sit for an interview with the College Graduate Studies Committee (CGSC) formed and chaired by the Dean. Based on the assessment of the candidate's aptitude for graduate studies, the CGSC may make one of the following recommendations:

- Accept the applicant on probation and require them to take a set of background courses and attain a CGPA of 80 in these courses to continue as a regular student.
- Require the applicant to take the RHU Graduate Entrance Exam (GEE) prepared to assess the candidate's competence level in Mathematics and the discipline study area. Based on the exam results, the CGSC recommends that the candidate be accepted on probation, take a set of courses, and earn a minimum score of 80 in each course to continue as a regular student.
- Require the applicant to submit GRE scores for admission to the College of Engineering or the GMAT scores for admission to the College of Business Administration, and based on the acquired score, the CGSC identifies the candidate's areas of weakness or gaps of knowledge and recommends that the candidate takes a set of background courses to improve his/her competency level.

English Language Proficiency Requirements

English is the language of instruction in all programs offered at RHU. Applicants must, therefore, demonstrate English language proficiency by passing the RHU English Entrance Exam or by achieving a minimum score on Standardized English competency exams as follows:

Standardized English Exam	Minimum Scores
Institutional TOEFL (ITP)/ RHU In-House TOEFL	550

Internet Based TOEFL (IBT)	80
IELTS	6.5
SAT Reading and Writing Evidence-Based	22/ 530+

Students who fail to attain the requisite score must enroll in the Intensive English Language Program (IELP) to achieve the necessary English proficiency. The IELP consists of four levels, and the student is placed at the appropriate level based on the English proficiency examination score. A student can skip ENGL 101 if they attain the required score for ENGL 210 stated above.

RHU recognizes an Institutional TOEFL score to be valid for one year from the date the test was taken. However, IBT score, SAT (writing section/ digital SAT), and IELTS score are valid for two years.

When registering for TOEFL and SAT, applicants must specify the RHU code 4438 for the results to be sent to the RHU Admissions Office.

Graduates of Technical Institutes

Holders of a Bachelor of Engineering Technology diploma from a technical institute are eligible to join the MS program at RHU in an engineering field related to their major. The Lebanese Ministry of Education and Higher Education requires that the student completes at least 90 credits during a minimum of three academic years to attain the Master of Science degree in engineering.

Transfer of Credits

A graduate course taken beyond the requirements for the bachelor's degree at RHU or other recognized institutions may be transferred for graduate credits at RHU, provided that the course grade is 75 or above. A maximum of six credits may be transferred.

Approval from the department concerned and the CGAC is required for all transfers.

Transfer Graduate Students

Graduate credits earned in a recognized institution other than RHU can be transferred subject to the following rules on a case-by-case basis:

- Attained a grade of 80 or above;
- A maximum of 12 credits are transferred for graduate credits beyond a Bachelor of Science in Engineering or a Bachelor of Business Administration.

Transfer of Credits from One Master’s Degree to Another

Graduate courses taken beyond the courses required for a master's degree at RHU may be transferred to another master's degree program at RHU. The following conditions apply: (1) The applicant earns an 80 or above in the courses to be transferred; (2) A

maximum of six credits may be transferred if courses are relevant to the new graduate program. Approval from the department concerned and the GSRC is required for all transfers.

Application Package

To be considered for admission to graduate studies at RHU, applicants must submit the following documents (RHU graduates are not required to submit the documents of items 1 through 5):

1. A certified copy of the undergraduate degree and its equivalence from MoHE;
2. Official transcripts attested recently by MoHE and the university catalog;
3. A certified copy of the Lebanese Official High School Certificate or its equivalent;
4. Sit for the RHU English Entrance Exam or submit one of the standardized English Competency Exams.
5. Two letters of recommendation;
6. Certified copy or Original Personal Civil Status Record (for Lebanese applicants);
7. Photocopies of passport and residence permit (for non-Lebanese Applicants);
8. Three identical recent passport-size colored photos;
9. A non-refundable application fee of USD 30 is paid in cash at RHU or any branch of BankMed.

Tuition Fees

Payment Methods

The Board of Trustees determines the University tuition and fees annually. Tuition and fees may increase annually without prior notice. Currently, tuition and fees are posted on the University website: www.rhu.edu.lb.

Tuition	LBP	USD
College of Business Administration		
Undergraduate Program		
Per credit	2,500,000	136
Graduate Program		
Per credit	4,347,000	299
College of Engineering		
Undergraduate Program		
Per credit	3,600,000	205
Graduate Program		
Per credit	4,347,000	299
College of Arts and Sciences		
Undergraduate Program *Per credit*		
Graphic Design	3,300,000	162

Computer Science; Health Care Information Systems	2,900,000	142
Other Programs		
Freshman Level Courses		
Per credit	3,250,000	160
Intensive English Language Program (IELP)		
Per level		
IELP 085	5,800,000	340
IELP 095	5,800,000	340
IELP 100	4,000,000	200
Fees		
Enrollment [1]	3,000,000	100
Deposit [2]		100
NSSF [3]	5,400,000	
Service Fees		
Per semester		200
Per summer session		90
Deferred Payment [4]		
Per semester		20
COOP		125
Late Registration [5]		20
Late Payment [6]		
On each installment		20
Transportation / Parking (Optional)		
Regular Shuttle [7]		
Per semester		300
Per summer session		
Parking Fee		
Per semester		50
Per summer session		25
Dormitory/Housing (Optional)		
Double room in a shared apartment- fall or spring semesters (Block- A)		660
Double room in a shared apartment- summer semester (Block A)		330
Single room -fall or spring semesters (Block A & F- cat. I)		880
Single room - summer semester (Block A & F- cat I)		440
Single room -fall or spring semester (F - cat. II)		825
Single room - summer semester (F - cat. II)		415
Dorm Deposit [8]		100

[1] Enrollment: Paid by new students upon the decision to join RHU and credited to the statement of fees for the first semester.
[2] Deposit: Paid by new students upon the decision to join RHU and refunded only upon graduation.
[3] NSSF subscription: An annual fee paid by Lebanese students not registered in NSSF.

[4] Deferred Payment: Payments of tuition fees will be scheduled over four installments for the fall and spring semesters and two installments for the summer semester
[5] Late registration: A student must register during the registration period; otherwise, a late registration fee will be added.
[6] Late payment: An additional charge for any installment not paid by the established deadline.
[7] Regular Shuttle: Beirut <-> RHU ; Saida <-> RHU ; (Mokhtara <-> RHU ; Cheheem <-> RHU when applicable).
[8] Dorm deposit: Refunded to the student upon leaving the facility and only when the room furniture and assets are handed in free of damage.

Payment Methods

Students must pay all tuition balances and other university fees by the announced deadlines to avoid late payment fees and the risk of courses being dropped. Once the student registers for a course, he/she shall remain accountable for all applicable tuitions and fees until he/she drops the course formally by the drop/add deadline. Refer to the academic calendar at www.rhu.edu.lb for applicable deadlines.

Payments must be made **in cash** by the announced deadlines through one of the following methods:

1. At any branch of Bank Med
2. RHU Finance Department

Each student must download the statement of fees from RHU's Student Information System (SIS), print it, and present it to the Bank/Finance Department at the time of payment.

All student payments will be automatically deferred over four payments for the fall and spring semesters and over two for the summer semester.

Tuition Refund

In case any student has decided to drop an **already** paid course (s), the following will be applied:

1. During the drop and add period, paid fees of the dropped course(s) will be credited to the student's statement of fees in full.
2. After the drop and add period, no refund will be applied unless the student withdraws due to emergent circumstances. Refer to the withdrawal section of the catalog for more information.

If a student decides to withdraw from the University officially, then the following will be applied:

1. If a student had paid the full tuition and fees:
    - Before the official beginning of classes, 75% of the tuition and fees are refunded

- On the first day of the classes and during the Drop and Add period, 50% of the tuition and fees are refunded
- After the Drop and Add Period, no refund

2. If a student is benefiting from the deferred payment program, no refund of tuition and fees is applicable

Clearance and general deposit refund

Upon completion of the graduation requirements, the student has to fill out a clearance form, which can be obtained from the registrar's office. The general deposit can be refunded upon completing the form and securing the required signatures.

The dorm deposit is refundable upon graduation & leaving the dormitory facility.

P.S. All deposits will be refunded after deducting any outstanding balances.

REGISTRAR'S OFFICE

Nidal Khalaf, Registrar
Amani Baasiri, Assistant Registrar
Block B
Phone: (961) 5 60390, Ext: 615/618.
Email: registrar@rhu.edu.lb
www.rhu.edu.lb/registrar

The Registrar's Office administers academic processes, enforces academic regulations, and tracks students' academic progress. The office coordinates closely with academic advisors and academic units to guarantee the accomplishment of the following responsibilities: implementing updated study plans; maintaining student's academic records; enforcing University academic regulations, policies, and bylaws; tracking students' performance and generating students' statistical reports; preparing courses and exams schedules; assigning classrooms; registering students for the correct classes; issuing transcripts; verifying graduation lists; ensuring up-to-date CampusVue records and information; and updating and publishing University calendar and catalog.

The Registrar's Office uses the CampusVue Students Information System to implement academic processes and maintain students' records in coordination with the MIS team at the IT Center. Students and faculty have CampusVue personal secured accounts to access relevant records, courses, schedules, grades, etc.

For registration procedures, deadlines, and related issues, please refer to the Registration section in this catalog or visit www.rhu.edu.lb/registrar

Registration

After consulting with their academic advisors, students must register for the courses they intend to take during the registration period noted in the academic calendar, presented in this catalog, and posted on the University website www.rhu.edu.lb/. During the registration period, academic advisors assist the students in preparing the course schedules by completing the Course Registration Forms and activating personal online CampusVue registration. Copies of the Course Registration Forms must be sent to the Registrar's Office after the drop/add period to verify students' schedules and archiving. Any course registered online by the student without prior approval of the academic advisor shall be automatically dropped.

The course schedule must comply with the following rules: the prerequisite(s) of the courses the student intends to take were completed, the courses are required by the program and are taken in the order noted in the program's study plan, failed courses are taken when first offered, and the maximum and minimum load rules are met. After completing the registration, the student must print the statement of fees and proceed to pay all applicable tuition and fees by the announced deadlines. Failure to meet financial commitments may result in dropping the class schedule.

National Social Security Fund (NSSF)

The Lebanese Law mandates that all Lebanese students be registered as members of the NSSF. This requirement does not apply to non-Lebanese students. A Lebanese student admitted to RHU must complete the Social Security Application form dispatched with the admission letter. On the form, the student indicates:

- NSSF status (beneficiary or not)
- NSSF number if already registered (employed students only)
- NSSF number of parents (if beneficiary)
- An official attestation of the type and source of all benefits, including NSSF

Refer to the Student Services section for more information on NSSF matters.

Passport and Visa

Expat students admitted to RHU must have their passports valid for 13 months from joining RHU and obtain a visa from the Lebanese Embassy in the country of origin.

ACADEMIC REGULATIONS

Once accepted into a graduate studies program, the following regulations apply:

Period of Study

All requirements for the master's degree must be completed within a maximum period of four years after admission to the graduate program. Extension beyond the maximum allowed study period requires justification and approval by the CGSC and the VP of Academic Affairs.

Orientation

During the first semester of graduate work, the concerned department will arrange a meeting to explain the graduate studies policies and help graduate students get acquainted with the faculty and their research interests. This is intended to help expedite students' selection of a project topic and advisor.

Supervision

During the first semester of graduate studies at RHU, the department concerned shall designate an interim academic adviser to guide students in planning a course of study for the semester and acquaint them with the graduate studies policies and procedures. By the end of the first semester, each student must choose an advisor, prepare a study plan, and complete the GS-1 form.

Courses and Grades

Courses taken as part of a student's graduate study program fall into two categories: background and graduate courses.

Background Courses

Students accepted to a graduate program may be requested to take a set of background courses, usually undergraduate courses that do not carry graduate credits but are required to make up for any deficiencies in the student's background. The following conditions apply to background courses:

- The number and level of prerequisite courses are part of the plan of study set by the college at the time of admission.
- Background courses must be registered first if offered.
- A student may repeat a course for which a grade less than 80 is earned only once.
- A maximum of two background courses may be repeated for grade improvement.

Failure to meet these conditions results in the student's automatic dismissal from the graduate program.

Graduate Level Courses

The minimum passing grade of a graduate course is 70. Students in the graduate program must maintain a cumulative average of at least 80 in all courses taken for graduate credit.

Course Load

The maximum course load for a graduate student is 12 graduate credits per regular semester. Students on probation can register a maximum of 9 credit hours per semester. Students employed during their graduate studies are strongly advised not to take more than six credits.

Plan of Study

By the end of the first semester, a graduate student and her/his Academic Advisor must complete the Proposed Program of Study form (GS-1), including a tentative study plan. This program of study is submitted to the Chairperson of the concerned Department for approval and then to the Dean of the College. Once approved, this document becomes part of the student's permanent record.

Academic Standing

Regular Standing

Regular standing status is attributed to a graduate student who maintains a cumulative GPA of 80 or above and has not failed any course.

Warning

A student receives an academic warning if his/her SGPA in any regular semester falls below 75 while maintaining a CGPA of 80 or above and has not failed any course.

Academic Probation

Academic Probation is applied to a student who fails a course taken for graduate credit and/or has a CGPA of less than 80. After being placed on probation, academic probation must be removed in two regular semesters. During this period, all failed courses must be repeated and successfully passed. If a failed course was not offered during the probation removal period, it must be successfully repeated when first offered.

Repeated Courses

A graduate course may be repeated only once.

Dismissal

Dismissal from the graduate program applies to a student who:

- Attains a Semester GPA less than 70;
- Fails to remove probation in two consecutive regular semesters, irrespective of the number of earned graduate credits;
- Failed a course more than once;
- Placed on probation more than once.

Graduate Assistantship

Rafik Hariri University (RHU) offers limited merit-based assistantships to graduate students under the Graduate Assistant (GA) Program every term, excluding summer. This scholarship provides limited financial support to qualified graduate students for the services they render to the University. Refer to the department chairperson for more information and submission of application.

Graduation Requirements

To be eligible for graduation with a master's degree, a graduate student must have:

- Completed the credit hours of coursework required by the program;
- Completed the thesis/project requirements and submitted a copy of the thesis/project to the library;
- Met the period of study requirements;
- Passed all courses; and
- Attained a CGPA of at least 80.

Note: Please refer to the related college section for additional college requirements that may apply.

LIBRARY

Block E
Phone: 00961 5 603090; Ext: 434/435
E-mail: library@rhu.edu.lb
www.rhu.edu.lb/library

The Library at Rafik Hariri University supports students, faculty, and staff with the resources and services they need to succeed in their educational and research undertakings. The library was founded in 1999. Its building occupies more than 650 square meters of space, offering the users ample study and computing commons, halls for meetings, seminars, conferences, and classrooms. The library applies international standards and implements modern technologies in all functions and services. RHU library provides academic programs with resources in the form of books, journals, and multimedia resources. It also has a modern IT infrastructure which includes:

- An integrated library system (MEDAD ILS system) that embeds all library functions, services, and auxiliary tools that can be accessed at and off campus.
- Workstations located in the references area and connected to the Internet to access online catalogs, e-databases, Turnitin, and other resources
- A Multi-media room equipped with state-of-the-art modern tools, computers, video projectors, data shows, CD writers, scanners, etc.
- Wireless connectivity covers all library spaces.

RHU continues to develop branding and library resources and services in response to changes and emergent needs, participate proactively in the enrichment of the educational experience, improve information technology and multimedia assets, repurpose available space to accommodate changing library roles, improve community outreach and branding, and improve administrative structure and commit to due process.

Information Resources

Collections available at RHU Library include a wide range of information resources to support all academic disciplines and meet the needs of university faculty and students. In addition to maintaining traditional printed resources in the form of books and periodicals, the library holds a collection of electronic resources and multimedia materials (ProQuest & Springer Databases). The library home page provides links to full-text online databases, e-journals, e-books, research databases, and online catalogs. The homepage also includes information about library policies, service hours, auxiliary tools, and services. See https://rhu.edu.lb/Library.

Organization of Materials

Library resources are organized following international standards and best practices. All print resources are arranged and cataloged according to Dewey Decimal Classification 21 and MARC21 formats and standards for building bibliographic databases.

Library Services

The library staff assists users in using library resources and responds to inquiries received in person, by phone, by email, or through the library home page electronic forms. The staff also organizes specific training sessions to help users improve their skills in searching and retrieving relevant information. Faculty, students, and staff holding valid ID cards may borrow library materials by the circulation policy. Faculty members may request books and other materials on reserve for students to use inside the library premises for some time. Computer commons allow users to have on-site access and retrieve resources. Media resources, copiers, and printers are available inside the RHU Library. Pre-paid cards may be purchased to use the printing and photocopying machines.

Also, to expand resources beyond what is available on campus, improve services provided, and support research, the RHU Library joined the Interlibrary Loan Consortium and signed an agreement with Baakline National Library. These agreements will facilitate the sharing of resources between libraries by supplying books, e-book chapters, articles, and other material.

Interlibrary Loan

RHU students can borrow free of charge books, documents, and articles that are available in the libraries of the American University of Beirut, Beirut Arab University, Haigazian University, Lebanese American University, Middle East University, Notre Dame University-Louaize, United Nations - Economic and Social Commission for Western Asia, Université Saint-Esprit de Kaslik, Kaslik, Université Saint-Joseph de Beyrouth, and University of Balamand.

Baakline National Library

RHU students can visit and borrow free of charge books, documents, and articles available in the Baakline National Library.

Library Clearance

To obtain library clearance, all graduates must submit a soft copy of their senior projects in RHU Library format (Turabian format). Graduates should also ensure that all books and other borrowed materials are returned to the library before clearance.

INFORMATION TECHNOLOGY DEPARTMENT

IT Helpdesk
Phone: 00961 5 603090 Ext: 333
E-mail: helpdesk@rhu.edu.lb
www.rhu.edu.lb

The Information Technology Department exists to provide optimal IT solutions to support the University students, faculty, and staff in their quest to achieve excellence in teaching, learning, research, and service. It actively engages the teaching and learning processes by introducing multimedia solutions and mobile technologies, creating a smart classroom environment, and supporting effective utilization of the learning management system.

The IT Department is dedicated to supporting the administrative divisions by adopting technologies that enhance users' productivity in executing University functions and managing all University information systems. A key part of this support is the department's responsibility for maintaining and upgrading all hardware, software, and applications dedicated to running University academic and administrative functions. The IT Department also oversees infrastructure planning and maintenance and supervises related projects.

Operation and Network Services

The IT Department operates a cutting-edge Data Center that serves as the backbone of our IT infrastructure. This center houses the computers and related telecommunications and storage systems, including the latest-generation servers, Virtual Desktop Infrastructure, Storage Area Networking, and Intrusion Prevention System. It operates redundant power sources, data communications connections, and security devices, ensuring the reliability and security of our IT services.

The center includes numerous servers that provide all students, faculty, and staff with storage space and privileged access to network-based data, software resources, and Internet and e-mail services.

The network serves all students, faculty, and staff. It covers over nine buildings of classrooms, offices, and student and faculty dorms. The Gigabit Ethernet fiber-optic backbone network is connected to the Internet through a 150 Mb/s line to provide the bandwidth for quality services. The network has over 840 voice/data points and 40 or more wireless access points covering all university buildings. At present, nearly 400 computers make up the University network.

Management Information System (MIS)

The Management Information Systems (MIS) Section includes a highly competent team that manages the University Information Systems. The MIS is responsible for developing,

administrating, supporting, and providing service management for the University Enterprise Resource Planning (ERP), including the Student Information System (CampusVue), student accounting, finance, payroll, human resources systems, library and archiving systems, staff work log system, and an ID card system. Furthermore, the MIS manages information flow and generates reports for various university divisions for planning and decision-making purposes.

University Website

RHU website is an essential communication tool for the University and the source of vital information for prospective and current students, faculty, and staff, among other audiences.

Management of the website through a responsive content management system (CMS), led by the system administrator, strives to ensure that all the information is accurate and easily accessible.

The website provides the users with all available online services, including a Student Information System, Moodle, an Online Payment System, Surveys and Voting, an Alumni Section, the latest Press Releases, Events and News, Careers, Downloadable Applications, and more.

Instructional and Classroom Technologies

A team of dedicated specialists provides technology-aided teaching that meets the learning needs of faculty and students. It maintains multimedia assets in more than 32 classrooms and intelligent classrooms. The team manages Moodle – a Learning Management System (LMS) - which provides the platform through which faculty and students actively engage in the course material and improve students' potential to attain expected learning outcomes. New tools simplify the creation of online courses and enable the conversion of documents into dynamic objects.

IT Helpdesk Support Services

The IT Helpdesk team provides a wide range of support services for RHU students, faculty, and staff to ensure that technology-aided teaching, learning, and administrative processes run smoothly. These services include but are not limited to supporting all the IT peripherals (hardware and software) in offices, classrooms, and computer labs, users' accounts management, e-mail services, internet and Wi-Fi services, file sharing management, surveillance cameras management, access control management, ID cards printing, etc.

The Helpdesk team utilizes the Ticket Management System "TMS" as the primary communication channel with RHU faculty and staff members. TMS provides a transparent and interactive platform for staff and faculty members to send and save

requests (tickets) to report incidents and follow up on them. Also, TMS provides a space for end-users to provide satisfaction feedback on the service they receive from the ITC personnel in each ticket.

QUALITY ASSURANCE AND INSTITUTIONAL ADVANCEMENT

Ms. Mirna Talhouk, Associate Director
Block E
Phone: 00961 5 603090, Ext. 443
E-mail: gaia@rhu.edu.lb
www.rhu.edu.lb/qaia

The Quality Assurance and Institutional Advancement (QAIA) unit was established in 2014 to collect and analyze vital institutional data and to develop and implement quality assurance policies and procedures. The unit aims to improve institutional effectiveness, facilitate continuous improvement, support shared decision-making, and ensure the attainment of aspired excellence in all university areas. The QAIA unit is responsible for the following duties:

- Act as a repository of all official institutional documents and statistics;
- Design surveys, focus groups, assessment tools to collect and analyze institutional data;
- Issue reports to the University administrators;
- Maintain a database about competitor institutions;
- Prepare and maintain the University portfolio of programs by developing and implementing an institutional database for Rafik Hariri University that will integrate data from all sources of information in all colleges of the university;
- Harmonize the institutional effectiveness activities to ensure that all academic and administrative units achieve their outcomes and ensure consistency in all campus locations;
- Identify gaps in data collection, analysis, and utilization and establish procedures to maintain the quality of data;
- Ensure proper use of knowledge and internal/external assessment data;
- Design and update the evaluation and assessment methods appropriate for each category of programs and verify all development plans;
- Support academic units in accreditation efforts;
- Conduct periodic audits to monitor performance and improve related practices.

STUDENT AFFAIRS

Mrs. Sahar Hallak, Assistant Director
Block E
00961 3 5603090 Ext. 770/777
studentaffairs@rhu.edu.lb
www.rhu.edu.lb/studentaffairs

The Student Affairs Office is responsible for many functions that support the nonacademic aspects of university life, improve students' potential for academic success, and help them attain a meaningful, holistic experience. The Office manages student clubs, promotes athletic and creative activities, organizes cultural events, oversees housing facilities, provides counseling services, holds student elections, and organizes student orientation programs, in addition to handling the Work Study and the Financial Aid Programs. A brief overview of the various functions and services is presented below.

Cultural, Social, and Artistic Activities

RHU provides a supportive environment that encourages and enables students to participate actively in extracurricular activities. The Student Affairs Office works closely with student clubs, societies, and councils to enrich students' life outside the classroom. By organizing a broad spectrum of athletic, cultural, social, artistic, and theatrical activities and events that are physically, psychologically, and socially constructive, students can advance a cause and practice a hobby they are passionate about. In doing so, students can connect with like-minded peers, build friendships, and develop leadership skills.

Counseling and Coaching

The Student Affairs Office aims to create conditions that promote students' social and psychological comfort essentials to achieve academic success. The Student Affairs Office supports students in overcoming obstacles and challenges during their university experience. The office organizes seminars and workshops to promote student awareness and help them develop skills in coping with social, psychological, and emotional difficulties and challenges. The office also provides one-to-one counseling to help students deal with personal issues and anxieties and make appropriate choices and decisions. For more information, please contact the Student Affairs Office at studentaffairs@rhu.edu.lb or 05/603090, Ext: 777.

Student Representations

We at RHU strongly believe in the participation of students in the decision-making process about issues that matter to them. The Student Representative Committee (SRC)

was established to guarantee that the students' voices, opinions, and concerns are debated to influence the outcomes of related decisions. Elections are held annually, and students choose their representatives on the SRC transparently and democratically.

Student Housing

There are two dormitories at Rafik Hariri University, one for the female students and the other for the male students.

The employees working in the students' dormitory yearn to offer comfortable, safe housing experiences to international students and dorm residents who study away from home. Each dorm features a social sit-in area, a study room with computers connected to the internet and library resources, and broadband WiFi coverage.

The University is keen to make the living experience on campus an opportunity to strengthen ties and build lifelong friendships among all students. The Student Affairs Office organizes sports, cultural, and social events exclusively for students living on campus. For more information on housing services, please contact us at studentaffairs@rhu.edu.lb or 05/603090, Ext: 777.

Athletics and Recreation

RHU's indoor sports center and outdoor tennis, football, and basketball courts provide ample opportunities for students, faculty, and staff to participate in their favorite sports, hobbies, and training needs. A team of specialists organizes athletic activities and tournaments to engage students and help them develop skills in the sports they are passionate about. Varsity teams are formed and supported to participate in local and international competitions. For more information, please contact the Athletic Department on 05/603090, Ext: 330.

Ushers

This program trains student volunteers and involves them in organizing university-sponsored events and conferences on and off campus. Ushers play a vital role in the success of open-house activities, graduation ceremonies, and orientation for new students. Ushers are trained to guide students, parents, and guests and make them feel at ease during their visit to the campus. Contact us at studentaffairs@rhu.edu.lb or 05/603090; Ext: 777.

Transportation

Free bus shuttles transport students from the dormitory to Damour's highway. Shuttle bus services are available to transport students to the RHU campus from and to several areas in Lebanon.

The buses run the routes several times per day. For more information about the bus schedule, please contact the Student Affairs Office at studentaffairs@rhu.edu.lb or 05/603090, Ext: 777.

Student Centers

There are student lounges where students can relax and enjoy activities such as chess, ping pong, and other entertainment. Each dorm also has two common rooms, one for social gatherings and the other for studies.

Food Services

The cafeteria at Rafik Hariri University serves a variety of traditional and international cuisines at reasonable prices during the day and through the evening hours. RHU also has ample and comfortable seat-in areas to enjoy your meal in the picturesque natural outdoors.

Health Care

The University Medical Clinic has a resident nurse who provides preliminary healthcare services to RHU students, faculty, and staff around the clock. The clinic is in Block "I" next to the bookstore. Ambulance services are also available around the clock if a situation needs attention beyond the clinic's available resources.

Student Rights and Responsibilities

Rafik Hariri University (RHU) pledges to students ***the right to***:

- be challenged to enrich the capacity for critical judgment;
- receive support in pursuit of answers and meanings;
- study in an inspiring and supportive learning environment;
- receive proper academic advising and mentoring;
- be treated with dignity and respect by all;
- receive a clear and informative course outline at the start of the semester and be informed of any modifications after that,
- receive constructive feedback on coursework within a reasonable timeframe;
- be assessed on the merits of academic performance without prejudice or other discrimination;
- ensure the confidentiality of academic and personal information;
- access all information and documents;
- express an opinion and convey grievances without fear of retribution; and
- protest the violation of rights, appeal judgment deemed unfair, and receive and understand related decisions;

And expects students to accept ***the responsibility to***:

- understand, comply and safeguard the University by laws and student code of conduct;
- set a purpose and drive to achieve it;
- study hard to learn and commit to forever learning;
- know the program study plan and graduation requirements;
- follow course outline, attend all classes, and accomplish course requirements timely and honorably;
- respect and adhere to established University deadlines;
- be courteous, respectful of diversity, and tolerant of others' beliefs and concerns;
- express concerns and grievances within the confines of civility;
- follow due process and react with reason in the face of conflict;
- protect University property and preserve campus beauty;
- embrace sustainable practices and use natural resources wisely; and
- represent the University with honor and professionalism.

Expected Conduct

Students must behave morally, act responsibly, and work diligently to advance their lives and communities. In doing so, they will:

1. Work hard and intently engage in the educational experience.
2. Speak out respectfully and feel free to propose initiatives to improve the university experience.
3. Refrain from smoking except in designated spaces.
4. Help maintain the cleanliness and beauty of the premises.
5. Place trash and recyclable items in designated receptacles.
6. Protect University facilities that are built for their benefit.
7. Never cheat or claim credit for work that is not their own.
8. Respect diversity and be tolerant of all points of view that are different from their own.
9. Understand the rights and responsibilities and appreciate the premise on which they are founded.
10. Adhere to the university bylaws and policies and assist in implementing them.

Work Study Program

The University allows students to partially support themselves by working up to 8 hours per week. In addition to earning a modest income, the Work Study (WS) program helps students gain work experience, improve communication skills, and increase future job prospects. For more information, please contact the Office of Student Affairs at studentaffairs@rhu.edu.lb or call 05/603090, Ext: 777.

Financial Aid Program

RHU believes every student should get the full opportunity to continue their education no matter how hard their living conditions are. For that, RHU offers financial assistance to qualified students who cannot afford the cost of their tuition. For inquiries about this program, please contact the Student Affairs Office at studentaffairs@rhu.edu.lb or call 05/603090, Ext: 777.

RESEARCH

In line with its mission, RHU aims to create conditions that promote quality research with the potential to advance knowledge and improve human conditions. Upon the recommendation of the Vice President for Academic Affairs (VPAA), the President appoints a graduate studies and research coordinator (GSRC) to ensure the achievement of that aim. The GRSC, while working closely with academic units, shall coordinate graduate studies and research efforts, follow up on graduate students' progress and needs, identify and seek both internal and external multidisciplinary collaborative research routes, manage the evaluation of the research proposals submitted by faculty members for university and external funding, tap external funding opportunities, and assist the VPAA in articulating and enforcing graduate studies and research policies.

COLLEGE OF BUSINESS ADMINISTRATION

COLLEGE OF BUSINESS ADMINISTRATION (CBA)

Officers of the College

Said Ladki	President
Mahmoud Halablab	Vice President for Academic Affairs
Jamil Hammoud	Dean

Contact Information

Ms. Suzan Al Ayash
Administrative Assistant
Building G, Room 101-G
Phone: 961 05 603090, Ext. 301
Email: da_bus@rhu.edu.lb

History and Overview

Being the first and oldest college of the University, The College of Business Administration (CBA) at Rafik Hariri University was established in 1999. Since then, the College has grown significantly and offers six undergraduate business programs in Accounting, Business IT Management, Finance and Banking, Human Resources Management, Management, Marketing, and Advertising. In addition, the College offers a graduate MBA program in general business administration. Moreover, the CBA takes pride in being the first in Lebanon and the Arab World to offer a graduate MBA program in Oil and Gas Management.

The faculty is active in applied research in several business domains and related areas, focusing on seeking solutions for actual community problems and issues. To that extent, and in partnership with governmental entities, civil society, trade associations, and the private sector, the College actively engages in ongoing outreach activities and initiatives designed to support community development and prosperity.

In 2019, the CBA became the first Lebanese university to earn full ACBSP accreditation for all its degrees and programs. This great achievement represents an internationally known and recognized certificate of rigorous and quality education in accordance with international standards and best practices.

Finally, the CBA distinguishes itself by its systematic COOP Work Experience program, which allows its students to gain real-world working experiences, and its Community Engagement Experience program, which enables the students to develop leadership skills via actual community service.

Vision

The College of Business Administration aims to become a premier innovative institution of business education in the region.

Mission

The College of Business Administration aspires to transform students' lives through graduate and undergraduate business education, advance knowledge through applied research, and positively impact society's pursuit of development and prosperity.

We aim to foster an educational culture and environment of innovation and collaboration that enables the development of leaders and professionals capable and willing to become agents of principled, ethical, and socially responsible human progress.

The College undertakes its mission in the context of a higher education philosophy that emphasizes proficient technical know-how in a specialization area, reinforced by core knowledge of main business functional areas, and grounded in the general fundamentals of liberal arts education.

Core Values

The College of Business Administration is committed to maintaining a system of norms, behaviors, and conduct well-grounded in the following main guiding values:

Academic Freedom of Inquiry

Faculty and students are free to pursue knowledge and learning so long as such pursuits do not breach University and College missions, policies, and regulations.

Excellence through Innovation

The College has an unwavering commitment to pursuing excellence in everything we do. Key to this pursuit is our innovative initiatives, ideas, and efforts.

Ethical and Socially Responsible Conduct

The College exercises all efforts possible to ensure the awareness and practice of ethical and socially responsible norms.

Tolerance and Diversity

The College is committed to highlighting and raising awareness of tolerant mentalities that accept and respect differences. Moreover, the College recognizes and promotes the enrichment resulting from diverse individuals, communities, ideas, and perspectives.

Personal Initiative and Individual Responsibility

Leaders and professionals have the courage to initiate and take responsibility for their choices. The College promotes this principle and encourages its stakeholders to learn and act in accordance with it.

Teamwork, collaboration, and cooperation

The College is committed to conducting its affairs in the spirit of teamwork and collaboration. Furthermore, the College opens opportunities for students to learn and appreciate the value of collective work.

Continuous Improvement and Innovation

The College regards continuous improvement and innovation in its programs and scholarship as necessary to meet the challenges of rapidly changing business environments.

College Learning Goals

Conforming to the College's mission statement, we aim to transform the lives of our students through graduate and undergraduate business education; the College's Learning Objectives specify the expected resulting outcome of this transformation as graduates capable of becoming agents of human progress.

Accordingly, the general learning objective of the College is to equip its students with the values, knowledge, competencies, and skills needed to produce a positive impact in whatever they do in life. These values, knowledge, competencies, and skills are as follows:

General and Specialized Knowledge

Knowledge of main business functional areas (CLG1)	Students will acquire basic and fundamental knowledge of the main functional areas of business, which is necessary to understand the general business environment and its interrelationships.
Specialized knowledge (CLG2)	Students will become proficient in up-to-date theories, applications, best practices, and other dimensions of their chosen area of specialization, including hands-on applications.

Communication

Effective communication (CLG3)	Students will acquire abilities to effectively communicate orally and in writing in various professional environments and settings.

Critical Thinking

Analysis and critical thinking (CLG5), 4	Programs and activities in the College will involve learning settings that require students to learn and practice analytical and critical thinking tools and methods.

Ethics and Social Responsibility

Ethical and socially responsible conduct CLG5	The college will ensure that its students are exposed to learning opportunities that will allow them to improve their recognition and awareness of ethical dilemmas and socially responsible behaviors.

MBA PROGRAM

Program Overview

The Master of Business Administration (MBA) program at the College of Business Administration (CBA) is a graduate studies program, carefully crafted and continuously reviewed and updated, to allow students interested in advanced studies to pursue their ambitions within the framework of adding value to the betterment of society and humanity.

The program blends contemporary theories with real-world applications and best practices in the context of international standards and expectations. Accordingly, teaching methods and approaches emphasize the case method, learning by doing, and thoughtful integration of online and information technologies.

Moreover, the program's breadth and depth are designed to ensure that graduates may join the business world upon graduation or pursue more advanced academic and/or applied studies.

Mission

The MBA program's mission is to create a sustainable learning environment conducive to developing professional managerial leaders who are able and willing to add economic and social value to society and humanity in whatever contexts they live or serve.

Specialization Options

Students admitted into the MBA Program may choose their emphasis to be: General Business Management or Oil and Gas Management. An undergraduate degree in business is not necessary to pursue studies in either of the two emphasis areas, as background and/or remedial courses could be given to compensate for a possible lack of fundamental business knowledge in accordance with the admission requirements specified below.

General Business Management: Student Learning Goals and Outcomes

Managerial Dimension
Goal 1: Demonstrate knowledge of contemporary and modern strategic planning and management.
Outcome 1: Use strategic management tools such as SWOT to evaluate the strategic position of a business organization.

Professional Dimension
Goal 2: Demonstrate ability to tackle business problems and skills to communicate business information effectively.
Outcome 2: Apply problem-solving tools to various business situations.
Outcome 3: Prepare and deliver presentations, projects, and research reports.

Economic Value Dimension
Goal 3: Demonstrate ability to integrate aspects from various functional business domains to arrive at plausible solutions.
Outcome 4: Identify and assess the various functional aspects of a business case or situation and propose appropriate solutions.

Social Value Dimension
Goal 4: Demonstrate awareness of the necessity to contribute to the betterment of society.
Outcome 5: Reflect on how business can contribute to society's well-being.

Oil and Gas Management: Student Learning Goals and Outcomes

Managerial Dimension
Goal 1: Demonstrate knowledge of contemporary and modern strategic planning and management, especially concerning the petroleum industry.
Outcome 1: Use strategic management tools such as SWOT to evaluate the strategic position of a business organization, with emphasis on the petroleum industry.

Professional Dimension
Goal 2: Demonstrate ability to tackle petroleum industry business problems and skills to communicate business information effectively.
Outcome 2: Apply problem-solving tools to various business situations pertaining to the petroleum industry.
Outcome 3: Prepare and deliver presentations, projects, and research reports.

Economic Value Dimension
Goal 3: Demonstrate ability to integrate aspects from various functional business domains to arrive at plausible solutions for petroleum industry problems.
Outcome 4: Identify and assess the various functional aspects of a business case or situation and propose appropriate solutions.

Social Value Dimension
Goal 4: Demonstrate awareness of the necessity to contribute to the betterment of society.
Outcome 5: Reflect on how business can contribute to society's well-being.

Admission Requirements

All applicants to the MBA program must first satisfy the university graduate admission requirements specified in this catalog.

Regular Admission

Applicants with a Bachelor of Business Administration degree or equivalent in any business area who satisfy the university graduate admission requirements for regular admission will be granted a regular admission status into the MBA program and will be exempt from any background and/or remedial courses.

Admission on Probation

Applicants admitted on probation into either one of the two emphasis options may have to take up to three background and/or remedial courses, in addition to the MBA program requirements, to solidify their chances of completing the MBA program. The number and nature of background and/or remedial courses are determined by the College's graduate admission committee on a case-by-case basis, depending on the strength of the applicant's file, professional work experience, and undergraduate transcript.

Admission for Students with non-business Undergraduate Degrees

Applicants with undergraduate degrees in areas other than business may have to take up to six background and/or remedial courses, in addition to the MBA program requirements, to ensure they have the necessary business foundational knowledge to complete the MBA program successfully.

The five courses generally include one foundational course in each area of Accounting, Finance, Economics, Management, Marketing, and Quantitative Methods. The number and nature of background and/or remedial courses are determined by the College's graduate admission committee on a case-by-case basis, depending on the strength of the applicant's file, professional work experience, and undergraduate transcript.

Program Requirements

MBA program requirements consist of mandatory core business knowledge courses (21 credits), elective specialization courses (12 credits), and an MBA capstone research project (3 credits). Moreover, students majoring in oil and gas management are required to complete a practicum of 1-to-2-month practical training period at various petroleum industry companies and organizations. All in all, students are required to complete 36 credits to graduate. The mandatory Core Business Knowledge Courses (21 Credits) are listed below:

Course	Title	Credits
BADM 505	Business Research Methods	3
BADM 515	Quantitative Modeling for Business	3
BECN 500	Applied Business Economics	3

BFIN 520	Corporate Financial Planning	3
BMGT 500	Strategic Planning and Business Policy	3
BMKA 510	Strategic Marketing Management	3
In addition to the above six mandatory courses, students on the General Business Management track must take BACC 500 – Strategic Managerial Accounting, and students on the Oil and Gas Management track must take BACC 505 - Accounting for Oil and Gas.		

MBA Research Project

Students in any MBA program are expected to complete their MBA studies by completing a capstone research project. The topic of the project is selected by the students and the project advisor and is expected to involve research on a pertinent contemporary issue. The student must present their work in a formal report.

Study Plans

MBA: General Business Management

Course	Title	Credits
Year 1, Fall Semester (9 Credits)		
BECN 500	Applied Business Economics	3
BADM 505	Business Research Methods	3
	Business Management Elective	3
Year 1, Spring Semester (9 Credits)		
BFIN 500	Corporate Financial Planning	3
BACC 500	Strategic Managerial Accounting	3
	Business Management Elective	3
Year 2, Fall Semester (9 Credits)		
BADM 515	Quantitative Modeling for Business	3
BMGT 500	Strategic Planning and Business Policy	3
	Business Management Elective	3
Year 2, Spring Semester (9 Credits)		
BMKA 510	Strategic Marketing Management	3
BADM 590	MBA Research Project	3
	Business Management Elective	3

MBA: Oil and Gas Management

Course	Title	Credits
Year 1, Fall Semester (9 Credits)		
BECN 500	Applied Business Economics	3
BADM 505	Business Research Methods	3
BMGT 530	Overview of the Global Oil and Gas Industry	3
Year 1, Spring Semester (9 Credits)		

BFIN 500	Corporate Financial Planning	3
BACC 505	Accounting for Oil and Gas	3
BECN 525	Energy Policy and Economics	3
Year 1, Summer (0 Credits)		
BADM 585	Practicum	0
Year 2, Fall Semester (9 Credits)		
BADM 515	Quantitative Modeling for Business	3
BMGT 500	Strategic Planning and Business Policy	3
BMGT 510	Advanced Project Management	3
Year 2, Spring Semester (9 Credits)		
BMKA 510	Strategic Marketing Management	3
BADM 530	Oil and Gas Law, Contracts and Negotiations	3
BADM 595	MBA Research Project in Oil and Gas Management	3

Courses Descriptions

Descriptions of these courses are given below:

BACC 500	**Strategic Managerial Accounting**	**3(3,0)**
This course investigates the important role accounting systems and information play in business management, planning, control, and decision-making. Topics include cost concepts, behavior, and estimation; theory of constraints; cost-volume-profit analysis; activity-based costing; capital budgeting; and profit planning.		

BADM 505	**Business Research Methods**	**3(3,0)**
This course is about using business research to support business and management decisions or pursue more advanced graduate studies in business. It mainly covers developing, implementing, analyzing, and reporting research proposals. While the course covers qualitative research, it generally emphasizes quantitative research and surveys in particular.		

BADM 515	**Quantitative Modeling for Business**	**3(3,0)**
This course introduces students to using management science to support the business decision-making process. The focus is on quantitative tools and techniques that facilitate decision-making, such as linear programming, transporting problems, project management, inventory models, waiting line modes, decision analysis, and forecasting.		

BECN 500	**Applied Business Economics**	**3(3,0)**
Business Economics combines microeconomic tools with management methods for effective decision-making. It mainly covers quantitative demand analysis, optimization, consumer behavior, production, cost analysis, market structures, and pricing.		

BFIN 520	**Corporate Financial Planning**	**3(3,0)**
This course exposes students to the firm's financial management for value maximization. That includes capital budgeting, capital structure, and working capital		

management. The course starts with an intensive review of main corporate finance principles, followed by advanced level coverage of capital budgeting, capital structure and leverage, dividend policy, long-term debt, financial forecasting, and working capital policy.

BMGT 500	Strategic Planning and Business Policy	3(3,0)
This course offers students deep insight into the strategic management process and its influence on an organization's competitive advantage. Students will develop a comprehensive management viewpoint that integrates their knowledge of specific business functions and enables them to formulate and implement strategy. The course covers vision, mission and objectives, environmental analysis, strategy formulation, implementation, and evaluation.		

BMKA 510	Strategic Marketing Management	3(3,0)
This course immerses the core principles and practices of successful marketing plans and strategies. Topics include creating a marketing strategy in the context of overall business strategy, exploring the marketing mix, competitive dynamics, value pricing, and integrating digital, brand, and business strategies. The course emphasizes customer relationship management and turning Big Data into value and profits.		

BACC 505	Accounting for Oil and Gas	3(3,0)
This course covers the fundamentals of oil and gas accounting. Topics include non-drilling exploration costs, drilling and development costs, proved and unproved property costs, asset retirement and asset impairment, oil and gas revenue accounting, oil and gas taxation, and oil and gas disclosures.		

Elective Courses - General Business Management Program (12 credits)

Students in the general business management program elect four specialization courses in addition to the mandatory core business knowledge requirements detailed above. Below are several elective specialization courses, along with their descriptions.

BECN 505	Globalization and International Business	3(3,0)
This course offers a thorough conceptual understanding of globalization and its implications on business and economic policymaking. In addition to pointing out globalization's challenges and opportunities, the course examines the interconnectedness between globalization and markets, governance, and global business and economic policy.		

BECN 515	Environmental Economics	3(3,0)
This course will focus on the balance between the environment and economic prosperity. Due consideration is given to the efficient and equitable use of environmental resources such as air, water, land, parks, and wildlife. The use of such resources is examined from several perspectives, including the market, efficiency, equity, and government policy.		

BECN 520	Emerging Markets	3(3,0)
The course contributes to understanding the trend for transformation towards open market economies while building accountability within the system. This includes reforming the price system, including prices in the labor market, exchange rate regimes, and legal reform covering business laws to enhance competitiveness and equal opportunities.		

BFIN 505	Portfolio Theory and Investment Analysis	3(3,0)
This course covers modern portfolio theories, asset allocation models, and methods for an effective investment decision. It covers investment strategies and management processes, short- and long-term investment objectives, financial instruments selection and timing, trading practices, performance evaluation, the Capital Asset Pricing Model, and the Efficient Market Hypothesis.		

BFIN 510	International Business Finance	3(3,0)
This course covers the environment of international financial management and country risk analysis, foreign exchange and derivatives markets, and FX risk management. It also deals with ways to finance multinational corporations and manage their working capital. In addition, it covers foreign investment analysis with special emphasis on FDI. The course includes an in-depth review of several contemporary case studies.		

BFIN 515	Commercial Bank Management	3(3,0)
The emphasis of this course is on commercial bank management policy and decision-making. The analysis focuses on advanced asset-liability management approaches and addresses banking risk management issues such as interest rate, liquidity, credit, operational and capital adequacy. Topics include performance, maturity, duration, and gap management.		

BMGT 505	Contemporary Management and Internal Organization	3(3,0)
This course examines how successful organizations use management to convert strategy into reality. It describes the management levels, managers' skills, and their functions. It elaborates, using contemporary management tracks, on the four management functions with special reference to leadership.		

BMGT 510	Advanced Project Management	3(3,0)
This course is intended to equip graduate students with the ability to manage mega projects in addition to advanced knowledge of the latest techniques used in various areas of project management, including project selection and planning, cost estimation and pricing, contracts and procurement, scheduling, and resource management. PMI standards will serve as a point of reference in instruction. Real project casework will be provided and used for teaching and demonstration.		

BMGT 520	Corporate Governance	3(3,0)
This course deals with the optimization of economic results as viewed by the processes of corporate governance. Corporate governance is how a corporation is directed,		

administered, and controlled. The balance of power between the corporation and its environment (the stakeholders) is well studied in this course.

BMGT 525	Entrepreneurship and Investment Capital	3(3,0)
Great business ideas will remain ideas unless the proper resources are allocated to transform them into business reality. This course discusses how business opportunities are created by matching entrepreneurs with capital. Students will examine how venture capitalists evaluate, value, and structure new entrepreneurial investments. Another aspect of this course is how venture capitalists manage their funds.		

BMGT 535	Ethics and Social Responsibility	3(3,0)
The purpose of this course is to enable students to make ethical decisions in business by providing them with a framework they can use to identify, analyze, and resolve ethical issues in business decision-making. In addition, social responsibility is an important part of a firm's business strategy. Issues such as the balance between business and social benefits, the role of sustainability in business strategy, and the importance of stakeholder relationships will be discussed.		

BMGT 540	Organizational Leadership and Behavior	3(3,0)
This course comprehensively analyzes individual and group behavior in organizations emphasizing leadership. Its purpose is to provide an understanding of how organizations can be managed more effectively while enhancing the quality of employees' work life. Topics include motivation, rewarding behavior, stress, individual and group behavior, conflict, power and politics, decision-making, communication, and organizational change and development.		

BMGT 545	Operations and Supply Chain Management	3(3,0)
This course teaches students how to manage the operations related to creating and distributing goods and services, increasingly taking place outside the boundaries of traditional enterprise settings. This study includes analyzing processes, ensuring quality, creating value, and managing the flow of information, products, and services across a network of customers, enterprises, and supply chain partners.		

BMKA 515	Branding and Franchising	3(3,0)
Students will learn to develop a brand strategy and analyze, evaluate, and manage brands for maximum effectiveness. The course also examines brand planning, brand equity, brand architecture, and different brand strategies. Franchise management issues and how to maintain and strengthen brand identity through franchising will also be analyzed.		

BMKA 520	Digital Marketing	3(3,0)
Digital marketing has evolved from a peripheral element of organizational marketing to one that is the hub of customer-centric communications in an increasingly multi-channel environment. This course explains the principles of digital marketing and the		

major factors involved with implementing, measuring, and evaluating successful campaigns that utilize digital marketing channels.

BADM 580	Graduate Independent Studies in Business	3(3,0)
This course is designed to allow students to pursue further knowledge and competence in emerging business topics and issues on an independent research basis under the supervision of a full-time faculty member. The student and the faculty supervisor will agree on specific issues, topics, and requirements.		

Elective Courses - Oil and Gas Management Program (12 Credits)

Students in the oil and gas management program must take the four specialization courses listed below, their descriptions, and the mandatory core business knowledge courses.

BADM 530	Oil and Gas Law, Contracts and Negotiations	3(3,0)
This course covers the legal rules that govern the development of privately owned mineral rights, which often also apply to government-owned resources. It covers the nature, protection, and conveyance of oil and gas rights, leasing, and taxation. In addition, the course covers the structure and different types of oil and gas contracts.		

BECN 525	Energy Policy and Economics	3(3,0)
This course covers the economics of various energy resources, emphasizing oil and gas. Students will be exposed to how market mechanisms shape and influence the demand for and the supply of energy. Moreover, the course examines energy cost structures and analyzes the relationship between energy consumption and the performance of the macroeconomy and economic growth.		

BMGT 510	Advanced Project Management	3(3,0)
This course is intended to equip graduate students with the ability to manage mega projects in addition to advanced knowledge of the latest techniques used in various areas of project management, including project selection and planning, cost estimation and pricing, contracts and procurement, scheduling, and resource management. PMI standards will serve as a point of reference in instruction. Real project casework will be provided and used for teaching and demonstration.		

BMGT 530	Overview of the Global Oil and Gas Industry	3(3,0)
This course presents a descriptive and analytical overview of the oil and gas business. It addresses a wide range of topics organized around the oil and gas industry value chain, starting with exploration and ending with products sold to consumers. Topics include issues related to upstream, midstream, and downstream aspects such as exploration, development, production, transportation, trading, refining, and marketing.		

MBA Research Project

Students in the MBA program with an emphasis in General Business Administration are expected to complete their MBA studies by completing a capstone research project, as described below.

BADM 590	MBA Research Project	3(3,0)
The MBA Research Project is a self-directed study undertaken by the student under close supervision of a faculty member. The project is a capstone experience that integrates knowledge from various business areas as part of a complete research process designed to address a business issue agreed upon between the student and the faculty supervisor.		

By contrast, students in the MBA program with an emphasis in Oil and Gas Management are expected to complete their MBA studies by completing an oil and gas capstone research project, as described below.

BADM 595	Oil and Gas Research Project	3(3,0)
The Oil and Gas Research Project is a self-directed study undertaken by the student under the close supervision of a faculty member. The project is an oil and gas capstone experience. It integrates knowledge from various areas as part of a complete research process designed to address an oil and gas issue of interest agreed upon between the student and the faculty supervisor.		

MBA Oil and Gas Practicum

Students enrolled in the Oil and Gas Management program must successfully complete a practical training practicum as described below.

BADM 585	Oil and Gas Practicum	0(0,3)
The Oil and Gas Practicum is 1–2 months of practical training performed at petroleum industry companies. The purpose is to enable the student to gain firsthand experience in the oil and gas business and develop a practical appreciation of the industry in general.		

Faculty List

Al Arabi El Kodssi, Sally; Assistant Professor, Ph.D. in Business Management, Pantheon-Sorbonne University, 2019.

Al-Hakim Nassif; Instructor, Master of Business Law, LAU,2018.

Al Majzoub, Mohamad; Assistant Professor, Ph.D. in Business Management, VGTU, 2023.

Ayass, Arfan; Instructor, MS in Accounting, University of South Carolina, USA, 1969.

El Hajj, Mohamad; Lecturer, Ph.D. in Management & Economic Sciences, Universite de Poitiers, 2015.

Hajj Omar, Maha; Lecturer, DBA, Paris School of Business, 2023.

Hajjar, Buthayna; Instructor, MBA, Lebanese American University, 2011

Hakim, Rima; Senior Lecturer, M.S., CMA in Business Management, Beirut University College (BUC), Beirut, Lebanon, 1993.

Hammoud, Jamil; Professor and Dean, Ph.D. in Economics, Ecole des Hautes Etudes en Sciences Sociales (EHESS), Paris, France, 2003.

Itani, Doriah; Instructor, PHR, MBA, Rafik Hariri University, Lebanon, 2011.

Masri, Kasem; Instructor, Master's in International Business, Grenoble Ecole De Management, 2012.

Saheb, Adel; Instructor, MS in Construction Management, University of Pittsburg, USA, 1987.

Saleh, Loubna; Lecturer, MBA, Lebanese American University, 2011.

Srour, Zeinab; Assistant Professor, Ph.D. in Management (Finance) & Applied Mathematics, University of Rennes 1 & LU, 2019.

Tarabay, Mohamad; Associate Professor and Chair, DBA in Finance, Grenoble Ecole De Management, Grenoble, France, 2010.

Ghalia, Nasreddine; Associate Professor, Ph.D in Technology of Information and System, University of Technology of Compiegne, France, 2009

Rouaa, El Chamaa; Lecturer, Ph.D in Computer and Communication Engineering, USJ/ Lyon University, 2020

Alexan, Hagopian; Instructor, Master of Arts in Business Administration-Finance, Haigazian University, 2006

COLLEGE OF ENGINEERING

COLLEGE OF ENGINEERING

Officers of the College

Said Ladki	President
Mahmoud Halablab	Vice President for Academic Affairs

Toufic Mezher

Contact Information

Ms. Alaa Al Lel
Administrative Assistant
Building C, Room 103
Phone: 961 05 603090, Ext. 501
Email: da_eng@rhu.edu.lb
www.rhu.edu.lb/ce

History

The College of Engineering at Rafik Hariri University (RHU) was established in 1999. Since then, the College has grown significantly and offers six undergraduate engineering programs in Biomedical, Civil, Computer and Communications, Electrical, Mechanical, and Mechatronics Engineering. Fully accredited by the Lebanese Ministry of Higher Education, the college works with each department to achieve accreditation by the Engineering Accreditation Commission of ABET – the most prestigious accrediting agency worldwide.

The College also features active research programs in several engineering areas. In this regard, master's degree programs in all six programs are available. For those students who are employed and can only be present on campus in the afternoons, a non-thesis master's degree option is also available. More than 400 students are currently enrolled in undergraduate and graduate programs.

Overview

The College of Engineering at RHU was established to fill a perceived gap in high-caliber, yet affordable, higher education in technology and associated fields. The college strives to apply learning methodologies that can transform entrant students into 21st-century leaders in their respective fields. Furthermore, the college stresses the importance of balancing knowledge skills and application. To the latter's effect, specialized Labs, modern classrooms, and a unique Co-op experience are implemented.

Vision

The College of Engineering aspires to be a center of excellence in engineering education and an incubational environment for innovation that serves Lebanon, the region, and worldwide.

Mission

The College of Engineering's mission is to provide quality professional education in a learning environment conducive to transformation, enabling our students to effectively innovate practical solutions to society's problems and individual needs in Lebanon, the Middle East, and the world.

Goals

We strive to achieve our mission. To this end, we are committed to ever revising our programs while keeping our senses tuned to our surroundings. More than anything else, our students - their learning and potential success - receive our greatest attention.

Values

The College of Engineering fully endorses the values of RHU of Academic Freedom of Inquiry, Excellence through Innovation, Ethical and Socially Responsible Conduct, Tolerance and Diversity, Personal Initiatives and Individual Responsibility, Teamwork, Collaboration and Cooperation, and Continuous Improvement.

Academic Programs

The College of Engineering offers six programs leading to a Master of Science Degree (MS).

1. Master of Science in Civil Engineering
2. Master of Science in Electrical Engineering
3. Master of Science in Computer and Communications Engineering
4. Master of Science in Biomedical Engineering
5. Master of Science in Mechanical Engineering
6. Master of Science in Mechatronics Engineering

Program Codes

The following table lists the code used for each program. This code is the prefix of each course designation in the program.

Program Code	Program
CIVE	Civil Engineering
BIOM	Biomedical Engineering
CCEE	Computer and Communications Engineering
ELEC	Electrical and Electronics Engineering
MECH	Mechanical Engineering
MECA	Mechatronics Engineering

Admission Requirements

All applicants to the MS program must first satisfy the university graduate admission requirements specified in this catalog.

Regular Admission

Applicants who satisfy the university graduate admission requirements for regular admission will be granted regular admission status into one of the six graduate programs and will be exempted from any background and/or remedial courses.

Admission on Probation

Applicants admitted on probation may be required to take background and/or remedial courses, in addition to the graduate program requirements, to treat any deficiencies in their background. The number and nature of background and/or remedial courses are determined by the College's graduate admission committee on a case-by-case basis, depending on the strength of the applicant's file, professional work experience, and undergraduate transcript.

Admission of Students with non-engineering Undergraduate Degrees

Applicants with undergraduate degrees in areas other than engineering may have to take bridging courses, in addition to the graduate program requirements, to ensure they have the necessary foundational knowledge of engineering to complete the graduate program they want to join. The number and nature of background and/or remedial courses are determined by the College's graduate admission committee on a case-by-case basis, depending on the strength of the applicant's file, professional work experience, and undergraduate transcript.

Degree Requirements

To earn an MS degree in any engineering discipline, students must complete 30 credits for the Thesis Option or 33 credits for the Non-Thesis Option. The holder of a BS degree with an accepted CGPA must take additional credits, and the holder of a BE degree with an accepted CGPA may transfer several credits from his BE program, as below.

Minimum MS Degree Requirements			
Undergraduate studies		MS Degree Credits Requirements	
Degree	Credits Earned	Thesis Option	Non-Thesis Option
Bachelor of Science Degree	114 Credits	48 Credits	51 Credits
Bachelor of Engineering Degree	147 Credits	15 Credits	18 Credits

Holder of BE degree:

Students with a BE degree from RHU may transfer up to 15 credits from courses taken in their senior years of the undergraduate program, provided that the student has attained a minimum of 80 in each course to be transferred.

Students with a BE degree from a reputable academic institution other than RHU may transfer up to 12 credits from courses in their senior years of the undergraduate program, provided that the student has attained a minimum of 80 in each course to be transferred.

Holder of BS degree:

Students with a BS degree from RHU or a reputable academic institution besides RHU must complete an additional 18 credits of engineering courses from the BE program before enrolling in the master's program. They must achieve an average of at least 80 percent in these courses. Failure to attain the required CGPA of 80 in these courses will result in the student being placed on probation and expected to remove the probation in one semester; otherwise, dismissal from the graduate program is imminent.

In addition to the general graduation requirement for RHU graduate degrees, the below conditions shall also apply:

1. MS students with Thesis option may not register more than three credits with Thesis II.
2. MS student with a non-thesis option may not register for the Capstone Project before the second semester of his study.
3. Although not recommended, MS students may take ENGR600 as a co-requisite with Thesis I or the Capstone Project.

A minimum of one calendar year of residence is required for graduation.

Graduate Studies Options

Graduate students may pursue one of two options: the Thesis option or the non-thesis option. The requirements for each option beyond the completion of all BE degree requirements are as follows:

Thesis Track

- Research Methods Course (3 credits)

- 600 level Technical Elective courses (6 credits)
- Thesis work (6 credits)

Non-Thesis Track

- Research Methods Course (3 credits)
- 600-level Technical Elective courses (12 credits)
- Project-based work (3 credits)

Master Project

In partial fulfillment of the requirements for the MS degree (non-thesis option), a student must complete a three-credit project selected by the students and advisor and approved by the Dean in consultation with the College Council.

Master Thesis

In partial fulfillment of the requirements for the MS degree, a student must submit a thesis based on original, independent research. The thesis must be in English. The thesis timeline and regulations are briefly discussed below. The thesis consists of 6 credits encompassing two parts: Thesis I (3 credits) and Thesis II (3 credits). Students must work closely with their thesis advisor so that the thesis is completed during the semester the student registers for Thesis II. If more time is needed to complete the thesis work, the student may be allowed to register for Thesis II one additional time at no cost. The student must pay for the credits for any registration beyond a second time. Thesis I & II can only be registered during regular semesters (fall or spring).

Timeline

The following tables summarize thesis regulations and completion deadlines.

Table 1 Steps towards Thesis Completion		
	Date	**Form to complete**
Orientation	The first week of the first semester	
Plan of study	At the end of the first semester	(GS-1)
Thesis committee formation	The end of 1st semester	
Thesis proposal	See table 2	(GS-2)
Thesis defense	See table 2	(GS-3)
Thesis copy to Library	See table 2	

	To graduate in		
Deadline for	**August**	**December**	**May**
Approval of thesis proposal and committee	Apr 30	Sept 15	Jan 15
Thesis defense	July 15	Dec 15	Apr 30
Deposit of thesis at library	July 25	Dec 24	May 10

Committee

Normally, the thesis advisor is chosen from the department's full-time professorial faculty. The thesis advisor and the graduate student must form the thesis committee. The committee shall comprise the thesis advisor as chairperson and at least two other members from the RHU academic community. At least two of the thesis committee members must be members of the department to which the student belongs. Committees can include up to four members. The additional member could be from RHU, an industry, or an institution other than RHU. All academic committee members should hold professorial rank. The thesis committee approves the thesis topic and research program and conducts the thesis defense examination. The Dean shall approve the thesis committee in consultation with the CGSC.

Proposal

Once the plan of study is approved, the student must submit to the CGSC a proposal approved by the thesis committee and the chairperson of the department at least two weeks before the CGSC meets. The proposal must include thesis objectives, Scope of work with relevant literature review, Research methodology, expected findings, and expected graduation date.

The Proposal Cover Page Form (GS-2) must be submitted with the proposal. The CGSC will decide on the proposal on the following dates: April 30 for students graduating in August, September 15 for students graduating in December, and January 15 for students graduating in May.

The decision of the CGSC is communicated to the student through his/her thesis advisor.

It is the student's responsibility to keep members of the thesis committee informed of the progress of his/her work and to seek their feedback.

Format

The required thesis format is explained in the Thesis Manual, which is available at the RHU Library. The thesis manual provides instructions on the preparation of a thesis. Theses not conforming to the requirements of the thesis manual will not be accepted. An abstract not exceeding 350 words must be submitted.

For all matters not discussed in the manual, theses must follow the form and style described in the latest edition of K. L. Turabian, Manual for Writers of Term Papers, Thesis and Dissertations (University of Chicago Press), or any other form specified by the department or program provided this conforms to the manual.

Defense

A graduate student may not have his/her thesis defense until he/she has successfully completed at least 30 credits of the course requirements for the master's degree and secured the permission of the thesis advisor.

A final draft of the thesis must be prepared in consultation with each thesis committee member. The final draft of the thesis must be submitted to each member of the thesis committee at least two weeks before the thesis defense date.

The thesis defense should occur at least four months after the GC approves the proposal. The deadlines for the thesis defense for students who wish to graduate in August, December, or May are July 15, December 15, and April 30, respectively.

The thesis defense will be open to the public and announced at least one week in advance. The total time allocated for the thesis defense should allow for answering all questions and normally not exceed 90 minutes.

The thesis defense results shall be reported on a special form, Form GS-3, signed by the chairperson and members of the thesis committee. The department's chairperson communicates this form to the Registrar with a copy of the plan of study form (GS-1) indicating the graduate courses completed by the student and the attained grades. If the student fails the thesis defense, the student may resubmit and defend it after at least three months. Failure on the second attempt results in automatic dismissal from the thesis work.

After the successful defense of the thesis, the chairperson of the department recommends to the GC that the student be granted the master's degree. A student must be registered for a Thesis-II in the semester in which he/she is expected to graduate.

Thesis Grade

The Thesis grade is P for Pass and F for Fail. If the thesis committee deems the thesis work exceptional, they may recommend that the department grants the student a commendation reflecting the exceptional outcome of his/her work.

Submission of the Thesis to the Library

After passing the thesis defense, the student must submit two hard copies and one soft copy of the thesis to the RHU Library to complete the clearance procedure and receive the degree from the Registrar's Office. The thesis should be complete with the abstract and signatures of the thesis committee members.

Study Plans

In the following sections, the study plan for each MS program offered in the College of Engineering is presented followed by the descriptions of the associated 600 level courses.

Civil Engineering Program

The following study plan summarizes the courses and credit distribution for the Master of Science (MS) in Civil Engineering. The following study plan serves as a roadmap for a smooth progression toward graduation.

Course #	Title	Credits	Prerequisites
ENGR 600	Engineering Research Methods	3	
CIVE 690	Capstone Research Project (non-thesis)	3	ENGL 217
CIVE 695A	Thesis I (thesis)	3	Co-req: ENGL 217
CIVE 695B	Thesis II (thesis)	3	CIVE 695 A
CIVE 6xx	Technical Elective I	3	
CIVE 6xx	Technical Elective II	3	
CIVE 6xx	Technical Elective III (non-thesis option)	3	
CIVE/MECH 6xx	Technical Elective IV (non-thesis option)	3	

A. Engineering Research Methods

The MEHE mandates the research methodology course. All MS-bound students must take this course. However, the specific experiences organized around the general topics may be tailored to meet the program's needs. The description of the Engineering required course is described below.

ENGR 600	**Engineering Research Methods**	**3(3,0)**
This course introduces students to quantitative and qualitative methods for engaging in meaningful research. At the end of the course, students will attain skills in research intent and design, methodology and technique, format and presentation, and data management. Throughout the course, the student's ability to use this knowledge to become a more effective researcher will be developed. In particular, the student will be able to develop a hypothesis about a research problem and develop related questions; frame the problem with the correct research methodology; collect data that accurately addresses the research problem; measure the effectiveness of a solution methodology; analyze data to make informed decisions; provide technical documentation of all the phases of a research project; evaluate the feasibility of research proposals; and present data to support decisions in front of stakeholders.		

B. Research Project/Thesis

CIVE 690	**Capstone Research Project**	**3(3, 0)**
A capstone course requiring group work in one of the emphasis areas offered by the Department. The project is to be carried out under the supervision of a full-time faculty member and culminated in a formal written and oral report (refer to college guidelines related to the graduation project's structure and content). **Prerequisite**: ENGL 217.		

CIVE 695A	**Master Thesis I**	**3(3, 0)**
Includes guided review of research literature and/or pilot work relevant to the thesis topic. By the end of this course, the candidate for the MS degree should have		

established a hypothesis, a research methodology, and a work schedule for the completion of his/her thesis. A brief oral and written report is expected at the end of the course and should be approved by the research advisor(s). (This course may be repeated only once to accomplish its objective). **Co-requisite:** ENGL 217.

CIVE 695B	**Master Thesis II**	**3(3, 0)**
Continuation of CIVE 695A Includes the completion and submission of a research thesis, the quality of which is judged acceptable by the jury committee established in accordance with the College of Engineering and Graduate Committee guidelines. (This course may be repeated only once to accomplish its objective). **Prerequisite:** CIVE 695A.		

C. Elective Courses

As part of the program for the Master of Science in Civil Engineering, the student is required to take a total of 6 credit hours (12 credit hours for the non-thesis option in addition to the three credits Capstone Project) of 600-level technical elective courses. These courses allow the student to attain in-depth knowledge and understanding in a focus area of interest. The student who chooses the non-thesis option can mix and match elective courses from different areas to acquire a broader knowledge of different Civil Engineering disciplines. The thesis option student should select, in coordination with the thesis advisor, the set of electives that best meet the requirements for the successful completion of his/her thesis. The CIVE available technical elective courses are distributed in three areas:

1. Structures, Materials and Geotechnical Engineering
2. Water & Environmental Engineering
3. Public Works, Construction Management

It is highly recommended that students take elective courses from the list below after completing the mandatory requirements in the related area. Students may select technical electives from other programs subject to the approval of the thesis committee.

The list of recommended technical electives is given below.

Course #	Title	Credits	Prerequisites
Structures, Materials, and Geotechnical			
CIVE 611	Plastic Analysis of Structures	3	CIVE 507
CIVE 613	Advanced Reinforced Concrete	3	CIVE 415
CIVE 614	Retaining Structures	3	CIVE 424
CIVE 615	Soil and Site Improvement	3	CIVE 424
CIVE 616	Advanced Construction Systems	3	CIVE 415, CIVE 417
CIVE 617	Soil Strength and Slope Stability	3	CIVE 423
CIVE 642	Bridge Engineering	3	CIVE 415, CIVE 424
Water & Environmental Engineering			
CIVE 672	Environmental Impact Assessment	3	
CIVE 673	Irrigation and Drainage Engineering	3	CIVE 536
CIVE 674	Environmental Policy and Management	3	

CIVE 675	Hydraulic and Hydrologic Modeling	3	CIVE 536
Public Works & Construction Management			
CIVE 604	Infrastructure Asset Management	3	Senior Standing
CIVE 605	Decision Making and Risk Management	3	MATH 351
CIVE 642	Bridge Engineering	3	CIVE 415,424
CIVE 643	Advanced Highway Engineering	3	CIVE 342, CIVE 415
CIVE 644	Airport Engineering	3	CIVE 342

Courses Description

Structures, Materials, and Geotechnical

CIVE 611	**Plastic Analysis of Structures**	**3(3,0)**
Concept of plastic analysis, plastic hinges, incremental load method (step by step), mechanism method, upper bound, lower bound, and uniqueness theorems, combined mechanisms, beams, multistory, multi-bay, and gable frames, computer implementation. **Prerequisite**: CIVE 507. On demand.		

CIVE 613	**Advanced Reinforced Concrete**	**3(3,0)**
Design of reinforced concrete walls: walls designed as compression members; empirical design method; alternative design of slender walls; shear walls; and pre-cast concrete. Distribution of forces among members, member design, structural integrity, connection and bearing design, strength evaluation of existing structures, and reinforced concrete arches. **Prerequisite:** CIVE 415. On demand.		

CIVE 614	**Retaining Structures**	**3(3,0)**
Lateral earth pressures: at rest, active and passive states, limit equilibrium methods and theory of elasticity, seismic conditions, hydrostatic and seepage pressures. Retaining walls: design of gravity, cantilever, and basement walls. Sheet piles: cantilever and anchored bulkheads, free- and fixed-earth support methods, moment reduction, and anchorage design. Braced cuts: pressure envelopes, design of sheeting, wale beams and struts, stability against bottom heave or piping. Shoring systems: types, control of groundwater, construction stages, anchors prestressing and testing, ground settlement around excavations. Code requirements, computer applications. **Prerequisite:** CIVE 424. On demand.		

CIVE 615	**Soil and Site Improvement**	**3(3,0)**
Mechanical methods: compaction theory, properties of compacted soils, laboratory tests, field equipment, compaction specifications and control, dynamic compaction, vibroflotation, and blasting techniques. Hydraulic methods: theory of wells, dewatering systems, drainage of slopes, preloading, and use of vertical sand/wick drains. Physical and chemical methods: granular admixtures, Portland cement, lime, calcium chloride, fly ash, bitumen, grouting materials, and techniques. Inclusion methods: reinforced earth with steel strips or geosynthetics, soil nails, and rock bolts. Laboratory and computer applications. **Prerequisite:** CIVE 424. On demand.		

CIVE 616	Advanced Construction Systems	3(3,0)
Composite systems; composite beams and columns; Lateral resisting systems; Braced Frames, Moment Resisting Frames (OMRF-SMRF), Shear Wall, Dual System, Core System. Design and detailing of special joints. **Prerequisite**: CIVE 415, CIVE 417. On demand.		

CIVE 617	Soil Strength and Slope Stability	3(3,0)
Slope stability is a critical element of geotechnical engineering and is involved in virtually every civil engineering project. The soil Strength and Slope Stability course aims to provide a detailed background to the Mechanics of soil, limit equilibrium procedures, discuss the classification of mass movement and landslide types, analyze slope stability, safety, and reliability, and investigate the main methods of slope design and stabilization. **Prerequisite**: CIVE423. On demand.		

CIVE 618	Special Topics in Design	3(3,0)
Design of bearing and retaining walls, strut-and-tie model; deep beams, corbels, inverted beams, water tanks, domes, ring beams, and beams subjected to torsion; finite element modeling and design of plates and shells. **Prerequisite**: CIVE 510 On demand.		

CIVE 642	Bridge Engineering	3(3,0)
Types of bridges and influence lines. Loads and their distribution on bridges, serviceability of bridges, design of bridge deck, superstructure, and substructure. **Prerequisite**: CIVE 415; CIVE 424. On demand.		

Water & Wastewater Treatment

CIVE 672	Environmental Impact Assessment	3(3,0)
Study and evaluation of the impacts of large-scale projects on the physical, biological, and socio-economic environmental aspects considering environmental laws and regulations and EIA guidelines, identification of impacts, quantification methods, mitigation measures, and monitoring plans. A case study involving the preparation of an EIA report, including sustainability impact assessment and preparation of an environmental management plan.		

CIVE 673	Irrigation and Drainage Engineering	3(3,0)
Irrigation: planning and design of canal networks, field irrigations, sprinkler irrigation system, drip irrigation system, drainage: the importance of drainage, open drainage design and planning, tile drainage design and planning, canal lining design. **Prerequisite:** CIVE 536. On demand.		

CIVE 674	Environmental Policy and Management	3(3,0)
This course explores human-made environmental problems parallel with concepts in environmental ethics, management, and policies so that solutions are provided concerning the preservation of the environment. Topics covered are air, water, and soil pollution, international and national environmental ethics, management, and policies. On demand.		

CIVE 675	Hydraulic and Hydrologic Modeling	3(3,0)
Hydraulic modeling: Physical modeling, numerical modeling, hydrologic modeling, application of deterministic and probabilistic concepts to simulate and analyze hydrologic systems; discussion of the theory and application of linear and non-linear, lumped, and distributed systems techniques in modeling the various phases of the hydrologic cycle. **Prerequisite:** CIVE 536. On-demand		

Public Works

CIVE 605	Decision Making and Risk Management	3(3,0)
Decision making, risk analysis, quantitative analysis, and application of quantitative methods to construction projects' environment. **Prerequisite:** Senior Standing.		

CIVE 642	Bridge Engineering	3(3,0)
Types of bridges and influence lines. Loads and their distribution on bridges, serviceability of bridges, design of bridge deck, superstructure, and substructure. **Prerequisite**: CIVE 415; CIVE 424. On demand.		

CIVE 643	Advanced Highway Engineering	3(3,0)
Highway and Airport pavement design (flexible and rigid pavements), Stress Analysis in flexible and rigid pavements, pavement response under traffic load, failure of flexible and rigid pavements, highway pavement maintenance and rehabilitation (methods, programs, management), types and design, Hot mix Asphalt Concrete: Materials, Design Methods, and Testing. **Prerequisite:** CVLE 342, CIVE 415. On demand.		

CIVE 644	Airports Engineering	3(3,0)
Principles of Airport Planning, Components of Airports (airside, landside), Aircraft characteristics, Airport operations, Airport System planning, Site selection, Land use, Airport terminal area and airport access, Airport Capacity and delays, Airport geometric design (Runways, Taxiways, Aprons), Safety Surfaces (Obstacle limitation surfaces: approach, take-off, transition, conical, horizontal), Airport pavement (types, design, construction). **Prerequisite:** CIVE 342. On demand.		

CIVE 645	Urban Transportation Planning	3(3,0)
A detailed review of the transportation planning process, inventory methodologies, trip generation, distribution, and assignment with associated mathematical models and theories, prediction of future travel, land and use models, modal split, developing and testing of proposed systems, and simulation. **Prerequisite:** CIVE 342. On demand.		

CIVE 685	Advanced Topics in Civil and Environmental Engineering	3(3,0)
A detailed investigation of advanced topics of current significance in civil and environmental engineering, such as the design of small earth dams, man and the environment, drilling and blasting, scheduling construction operations, operations research and optimization, construction equipment and methods, traffic safety, optimum structural design, environmental impact analysis, infrastructure networks, water and wastewater treatment, solid waste management, air pollution, systems		

analysis in civil engineering, and current issues and advances in civil and environmental engineering. May be repeated to a maximum of 6 credits, but only three credits can be earned under the same title. **Prerequisite:** Graduate studies.

Electrical Engineering Program

The following study plan summarizes the courses and credit distribution for the Master of Science (MS) in Electrical Engineering. The following study plan serves as a roadmap for a smooth progression toward graduation.

Course #	Title	Credits	Prerequisites
ENGR 600	Engineering Research Methods	3	
ELEC 690	Capstone Research Project (non-thesis option)	3	ENGL 217
ELEC 695A	Thesis I (thesis option)	3	Co-req: ENGL 217
ELEC 695B	Thesis II (thesis option)	3	ELEC 695 A
ELEC 6xx	Technical Elective I	3	
ELEC 6xx	Technical Elective II	3	
ELEC 6xx	Technical Elective III (non-thesis option)	3	
ELEC 6xx	Technical Elective IV (non-thesis option)	3	

A. Engineering Research Methods

The research methodology course is mandated by the MEHE. This course must be taken by all MS bound students. However, the specific experiences organized around the general topics may be tailored to meet the program's need. The description of the Engineering required course is described below.

ENGR 600	**Engineering Research Methods**	**3(3,0)**
This course introduces students to quantitative and qualitative methods for engaging in meaningful research. The student, at the end of the course, will attain skills in research intent and design, methodology and technique, format and presentation, and data management. Throughout the course, the student's ability to use this knowledge to become a more effective researcher will be developed. In particular, the student will be able to develop a hypothesis about a research problem and develop related questions; frame the problem with the correct research methodology; collect data that accurately addresses the research problem; measure the effectiveness of a solution methodology; analyze data to make informed decisions; provide technical documentation of all the phases of a research project; evaluate the feasibility of research proposals; and present data to support decisions in front of stakeholders.		

B. Research Project and Thesis

ELEC 690	Capstone Research Project	3(3, 0)
A capstone course requiring group work in one of the emphasis areas offered by the Department. The project is to be carried out under the supervision of a full-time faculty member and culminated in a formal written and oral report (refer to college guidelines related to the graduation project's structure and content). **Prerequisite:** ENGL 217.		

ELEC 695A	Master Thesis I	3(3, 0)
Includes guided review of research literature and/or pilot work relevant to the thesis topic. By the end of this course, the candidate for the MS degree should have established a hypothesis, a research methodology, and a work schedule for the completion of his/her thesis. A brief, written report is expected at the end of the course and should be approved by the research advisor(s). (This course may be repeated only once to accomplish its objective). **Co-requisite:** ENGL 217.		

ELEC 695B	Master Thesis II	3(3, 0)
Continuation of ELEC 695A - Includes the completion and submission of a research thesis, the quality of which is judged acceptable by the jury committee established in accordance with the College of Engineering and Graduate Committee guidelines. (This course may be repeated only once to accomplish its objective). **Prerequisite:** ELEC 695A.		

C. Elective Courses

As part of the program for the Master of Science in Electrical Engineering, the student is required to take a total of 6 credit hours (12 credit hours for the non-thesis option) of 600-level technical elective courses. These courses allow the student to attain in-depth knowledge and understanding in a focus area of interest. The student who chooses the non-thesis option can mix and match elective courses from different areas to acquire a broader knowledge of different Electrical Engineering disciplines. The thesis option student should select, in coordination with the thesis advisor, the set of electives that best meet the requirements for the successful completion of his/her thesis. The ELEC available technical elective courses are distributed in three areas:

1. Power
2. Renewable Energy
3. Intelligent Systems

It is highly recommended that students take elective courses from the list below after completing the mandatory requirements in the related area. Students may select technical electives from other programs subject to the approval of the thesis committee. The list of recommended technical electives is given below.

Course #	Title	Credits
ELEC 685	Advanced Topics in Electrical Engineering	3
Power		
ELEC 611	Computer Modeling of Electrical Power Systems	3

ELEC 612	Electric Power System Control	3
Renewable Energy		
ELEC 621	Renewable Energy Resources and Technologies	3
ELEC 622	The Smart Grid	3
Intelligent Systems		
ELEC 631	Digital Control	3
ELEC 632	Nonlinear Adaptive Control	3

Courses Description

ELEC 685	**Advanced Topics in Electrical Engineering**	**3(3,0)**
This course is designed to enable students to study current advanced topics of interest, which are carefully selected from ELEC-related topics. The contents of such a course are to be determined by the instructor and the department.		

Power

ELEC 611	**Computer Modeling of Electrical Power Systems**	**3(3,0)**
This course is intended to teach electrical engineering students how to simulate the changing states of electrical power systems by studying the performance and predicting the disturbances of the power system boosted by the FACTS. It describes the mathematical background, algorithms, and basic tools needed to simulate interconnected complex power systems and likely response to different types of network pathologies or disturbances.		

ELEC 612	**Electric Power System Control**	**3(3,0)**
This is a course on the structure of modern power systems, the different levels of control, and the nature of stability problems. The course will introduce students to generators, excitation systems, prime movers, AC and DC transmission, and system loads, as well as the principles of active and reactive power control and models for control equipment.		

Renewable Energy

ELEC 621	**Renewable Energy Resources and Technologies**	**3(3,0)**
This course covers renewable energy technologies from an engineering point of view, including applications, engineering calculations and design, feasibility, and so on. The main aim of the course is to provide the student with a systematic understanding of current knowledge, problems, and insight into the field of renewable energy technologies.		

ELEC 622	**The Smart Grid**	**3(3,0)**
The use of communications and information technologies is likely to cause major shifts in the way energy gets delivered. The smart grid will use these technologies to deliver electricity reliably and efficiently, and it has the potential to radically change the		

electricity sector in the same way that new technologies have changed the telecommunications sector. This course will examine not just the smart grid technologies but the transformational impacts of the smart grid on the industry. Students in this course will learn the fundamentals of the smart grid: its purpose and objectives, its technologies, its architectures, and its management. Students will also learn many of the challenges facing the smart grid as part of its evolution.

Intelligent Systems

ELEC 631	**Digital Control**	**3(3,0)**
This course is a comprehensive introduction to digital control system analysis and synthesis. The course covers the analysis and synthesis of sampled-data control systems. It capitalizes on the knowledge of the student in Classical Control to extend classical methods for the analysis and synthesis of digital control systems. The course also introduces digital control methods which are not based on classical control theory.		

ELEC 632	**Nonlinear Adaptive Control**	**3(3,0)**
This course presents a comprehensive exposition of the theory of nonlinear dynamical systems and their control. It will focus on (1) methods of characterizing and understanding the behavior of systems that can be described by nonlinear ordinary differential equations and (2) methods for designing controllers for such systems. In the design parts, we will focus on the robust nonlinear adaptive control. Both classical and modern concepts from nonlinear system theory will be introduced.		

Computer and Communications Engineering Program

The following study plan summarizes the courses and credit distribution for the Master of Science (MS) in Computer and Communications Engineering (CCE). The following study plan serves as a roadmap for a smooth progression toward graduation.

Course #	Title	Credits	Prerequisites
ENGR 600	Engineering Research Methods	3	
CCEE 690	Capstone Research Project (non-thesis option)	3	ENGL 217
CCEE 695A	Thesis I (thesis option)	3	Co-req: ENGL 217
CCEE 695B	Thesis II (thesis option)	3	CCEE 695 A
CCEE 6xx	Technical Elective I	3	
CCEE 6xx	Technical Elective II	3	
CCEE 6xx	Technical Elective III (non-thesis option)	3	
CCEE 6xx	Technical Elective IV (non-thesis option)	3	

A. Engineering Research Methods

The research methodology course is mandated by the MEHE. All MS-bound students must take this course. However, the specific experiences organized around the general topics may be tailored to meet the program's need. The description of the Engineering Research Methods course is given below.

ENGR 600	**Engineering Research Methods**	**3(3,0)**
This course introduces students to quantitative and qualitative methods for engaging in meaningful research. The student, at the end of the course, will attain skills in research intent and design, methodology and technique, format and presentation, and data management. Throughout the course, the student's ability to use this knowledge to become a more effective researcher will be developed. In particular, the student will be able to develop a hypothesis about a research problem and develop related questions; frame the problem with the correct research methodology; collect data that accurately addresses the research problem; measure the effectiveness of a solution methodology; analyze data to make informed decisions; provide technical documentation of all the phases of a research project; evaluate the feasibility of research proposals; and present data to support decisions in front of stakeholders.		

B. Research Project/Thesis

CCEE 690	**Capstone Research Project**	**3(3, 0)**
A capstone course requiring group work in one of the emphasis areas offered by the Department. The project is to be carried out under the supervision of a full-time faculty member and culminates in a formal written and oral report (refer to college guidelines related to graduation project structure and content). **Prerequisite:** ENGL 217.		

CCEE 695A	Master Thesis I	3(3, 0)
Includes guided research literature review and/or pilot work relevant to the thesis topic. By the end of this course, the candidate for the MS degree should have established a hypothesis, a research methodology, and a work schedule for the completion of his/her thesis. A brief, written report is expected at the end of the course and should be approved by the research advisor(s). (This course may be repeated only once to accomplish its objective). **Co-requisite:** ENGL 217.		

CCEE 695B	Master Thesis II	3(3, 0)
Continuation of CCEE 695A Includes the completion and submission of a research thesis, the quality of which is judged acceptable by the jury committee established in accordance with the College of Engineering and Graduate Committee guidelines. (This course may be repeated only once to accomplish its objective). **Prerequisite:** CCEE 695A.		

C. Elective Courses

As part of the program for the Master of Science in Computer and Communications Engineering, the student is required to take six credit hours (12 credit hours for non-thesis option) of 600-level technical elective courses. These courses allow the student to attain in-depth knowledge and understanding in a focus area of interest. The student who chooses the non-thesis option can mix and match elective courses from different areas to acquire a broader knowledge of different Computer and Communications Engineering disciplines. The thesis option student should select, in coordination with the thesis advisor, the electives that best meet the requirements for successfully completing his/her thesis. The CCE available technical elective courses are distributed in four areas:

1. Computer Software and Artificial Intelligence
2. Computer Hardware
3. Computer Networks
4. Signal Processing and Wireless Communications

It is highly recommended that students take elective courses from the list below after completing the mandatory requirements in the related area. Students may select technical electives from other programs subject to the approval of the thesis committee. The list of recommended technical electives is given below.

Course #	Title	Credits	Prerequisites
CCEE 685	Advanced Topics in Computer and Communication Engineering	3	
Computer Software and Artificial Intelligence			
CCEE 611	Game Design and Programming	3	CCEE 216
CCEE 612	Advanced Data Mining	3	CCEE 564
Computer Hardware			
CCEE 621	Reconfigurable Computing	3	CCEE 325
CCEE 623	Advanced Embedded Systems	3	CCEE 426

Computer Networks			
CCEE 631	Multimedia Systems	3	CCEE 447
CCEE 632	Ad-hoc Networks	3	CCEE 454
Signal Processing and Wireless Communications			
CCEE 641	Security in Wireless Networks	3	CCEE 552
CCEE 642	Satellite Communication Systems	3	CCEE 447

Courses Description

CCEE 685	Advanced Topics in Computer and Communication Engineering	3(3,0)
This course is designed to enable students to study current advanced topics of interest carefully selected from CCE-related topics. The contents of such a course are to be determined by the instructor and the department.		

Computer Software and Artificial Intelligence

CCEE 611	Game Design and Programming	3(3,0)
This course teaches the student the basics of object-oriented architectures and software design patterns used in game design. The student will learn how to design and implement several kinds of games, animation techniques, physics simulation, user controls, graphical methods, and intelligent behaviors. **Prerequisite:** CCEE 216.		

CCEE 612	Advanced Data Mining	3(3,0)
In this course, advanced data mining topics will be covered, namely, classification (decision trees, logistic regression, support vector machines), combining multiple learners (bagging, boosting, cascading, stacking), clustering (k-means, EM, hierarchical clustering, topic modeling), dimensionality reduction (principal component analysis, linear discriminant analysis, subset selection), and graphical models (Bayesian networks, Markov networks). More advanced topics will be covered through student presentations, such as active learning, multi-label learning, graph mining, link prediction, data mining in bioinformatics, social media analytics, privacy-aware data mining, viral marketing, recommender systems, large-scale data mining, temporal pattern mining, stream data mining, and outlier detection. **Prerequisite:** CCEE 564.		

Computer Hardware

CCEE 621	Reconfigurable Computing	3(3,0)
This course introduces the student to state-of-the-art reconfigurable computing (RC) from hardware and software perspectives. Numeric and signal processing applications will be used to illustrate the RC platform's advantages. Field-programmable gate arrays (FPGAs) will be reviewed first, focusing on their hardware limitations and their effect on the placement and routing problems. Then, the architecture for existing multi-FPGA systems and the compilation techniques for mapping applications described in a hardware description language for RC are introduced. Finally, specific contemporary RC systems are examined. Students will be expected to work with recent existing RC hardware to design and implement working projects. **Prerequisite:** CCEE 325.		

CCEE 623	Advanced Embedded Systems	3(3,0)
This course introduces the student to Real-time operating systems (RTOS). The RTOS topics of managing multiple tasks and processes, context switching, task scheduling, and inter-process communication mechanisms are introduced. The student will also learn how to ensure system reliability and fault tolerance. Students must use state-of-the-art development tools to design and implement useful projects. **Prerequisite:** CCEE 426.		

Computer Networks

CCEE 631	Multimedia Systems	3(3,0)
This course covers multimedia applications and requirements; Audio/Video fundamentals, including analog and digital representations, human perception, and audio/video equipment; audio and video compression, including perceptual transform coders for images/video scalable coders and perceptual audio encoders; application and performance comparison of various coding algorithms including hardware/software trade-offs. Image and video processing applications and algorithms and multimedia hardware and software. **Prerequisite:** CCEE 447.		

CCEE 632	Ad-hoc Networks	3(3,0)
This course will provide students with an understanding of wireless ad-hoc networks, enabling them to recognize these networks' wide range of applicability and the major design issues, including topics such as protocol mechanisms and resource constraints. **Prerequisite:** CCEE 454.		

Signal Processing and Wireless Communications

CCEE 641	Security in Wireless Networks	3(3,0)
This course will present the most important mechanisms dedicated to protecting data integrity and confidentiality, access control, authentication, user privacy, quality, and continuity of service in wireless networks. Topics include Wireless Technology Overview, Risks and Threats of Wireless, Security under Resource Constraints (bandwidth, memory, computation, energy constraints), Intrusion and Anomaly Detection in Wireless Environments, Key Management in Wireless Environments, Privacy and Anonymity in Wireless Environments, Public Key Infrastructure in Wireless Environments, Authentication, Authorization, and Access Control in Wireless Environments, Standards in Wireless Security (Equivalent Privacy Standard (WEP), Extensible Authentication Protocol (EAP), Wi-Fi Protected Access (WPA, WPA2, IEEE 802.11i), Bluetooth Security, RFID Security, Secure Mobile Commerce, Secure Wireless Multimedia Broadcast. **Prerequisite:** CCEE 552.		

CCEE 642	Satellite Communication Systems	3(3,0)
Description of a Satellite Communication System, Orbit Types, Radio Regulations Applications of Communication Satellites. Multiple Access Techniques. Multi-beam Satellite Systems, Regenerative Satellite Systems, Broadcasting by Satellites, Satellite		

Communication Techniques, Satellite Communication Payload, Earth Station Technology. **Prerequisite**: CCEE 447.

Biomedical Engineering Program

The following study plan summarizes the courses and credit distribution for the Master of Science (MS) in Biomedical Engineering. The following study plan serves as a roadmap for a smooth progression toward graduation.

Course #	Title	Credits	Prerequisites
ENGR 600	Engineering Research Methods	3	
BIOM 690	Capstone Research Project (non-thesis option)	3	ENGL 217
BIOM 695A	Thesis I (thesis option)	3	Co-req: ENGL 217
BIOM 695B	Thesis II (thesis option)	3	BIOM 695 A
BIOM 6xx	Technical Elective I	3	
BIOM 6xx	Technical Elective II	3	
BIOM 6xx	Technical Elective III (non-thesis option)	3	
BIOM 6xx	Technical Elective IV (non-thesis option)	3	

A. Engineering Research Methods

The MEHE mandates the research methodology course. All MS-bound students must take this course. However, the specific experiences organized around the general topics may be tailored to meet the program's need. The description of the Engineering required course is described below.

ENGR 600	Engineering Research Methods	3(3,0)
This course introduces students to quantitative and qualitative methods for engaging in meaningful research. At the end of the course, the student will attain skills in research intent and design, methodology and technique, format and presentation, and data management. The student's ability to use this knowledge to become a more effective researcher will be developed throughout the course. In particular, the student will be able to develop a hypothesis about a research problem and develop related questions; frame the problem with the correct research methodology; collect data that accurately addresses the research problem; measure the effectiveness of a solution methodology; analyze data to make informed decisions; provide technical documentation of all the phases of a research project; evaluate the feasibility of research proposals; and present data to support decisions in front of stakeholders.		

B. Research Project/Thesis

BIOM 690	Capstone Research Project	3(3, 0)
A capstone course requiring group work in one of the emphasis areas offered by the Department. The project is to be carried out under the supervision of a full-time faculty		

member and culminated in a formal written and oral report (refer to college guidelines related to the graduation project's structure and content). **Prerequisite:** ENGL 217.

BIOM 695A	**Master Thesis I**	**3(3, 0)**
Includes guided review of research literature and/or pilot work relevant to the thesis topic. By the end of this course, the candidate for the MS degree should have established a hypothesis, a research methodology, and a work schedule for the completion of his/her thesis. A brief, written report is expected at the end of the course and should be approved by the research advisor(s). (This course may be repeated only once to accomplish its objective). **Co-requisite:** ENGL 217.		

BIOM 695B	**Master Thesis II**	**3(3, 0)**
Continuation of BIOM 695A Includes the completion and submission of a research thesis, the quality of which is judged acceptable by the jury committee established in accordance with the College of Engineering and Graduate Committee guidelines. (This course may be repeated only once to accomplish its objective). **Prerequisite:** BIOM 695A.		

c. **Elective Courses**

As part of the program for the Master of Science in Biomedical Engineering, the student is required to take a total of 6 credit hours (12 credit hours for non-thesis option) of 600-level technical elective courses. These courses allow the student to attain in-depth knowledge and understanding in a focus area of interest. The student who chooses the non-thesis option can mix and match elective courses from different areas to acquire a broader knowledge of different Biomedical Engineering disciplines. The thesis option student should select, in coordination with the thesis advisor, the set of electives that best meet the requirements for the successful completion of his/her thesis. The BIOM available technical elective courses are distributed in three areas:

1. Medical Instrumentation and Imaging
2. Clinical Engineering and Bioinformatics
3. Artificial organs

It is highly recommended that students take elective courses from the list below after completing the mandatory requirements in the related area. Students may select technical electives from other programs subject to the approval of the thesis committee. The list of recommended technical electives is given below.

Course #	Title	Credits	Prerequisites
Medical Instrumentation and Medical Imaging			
BIOM 611	Interventional Treatment Systems	3	BIOM 414
BIOM 612	Emerging Techniques in Healthcare	3	BIOM 417
BIOM 613	Human Performance Engineering	3	BIOM 530
BIOM 621	Cardiovascular Explorations and Angiographic Procedures	3	BIOM 522
BIOM 622	MRI Research and Innovations	3	BIOM 522

BIOM 623	Functional and Molecular Imaging	3	BIOM 522; BIOM 530
Clinical Engineering and Bioinformatics			
BIOM 631	Risk Management	3	
BIOM 632	Health Care Facility Management	3	
BIOM 633	Medical Technology & Ethics	3	BIOM 531
BIOM 651	Medical Informatics and Artificial Intelligence	3	
BIOM 652	Bio-computation	3	
BIOM 653	Biometrics	3	
Artificial Organs			
BIOM 641	Prostheses	3	BIOM 519
BIOM 642	Transport Phenomena	3	BIOM 522
BIOM 643	Genetic and Tissue Engineering	3	BIOM 416

Courses Description

BIOM 685	**Advanced Topics in Biomedical Engineering**	**3(3,0)**
This course is designed to enable students to study current advanced topics of interest carefully selected from BIOM-related topics. The contents of such a course are to be determined by the instructor and the department.		

Medical Instrumentation and Medical Imaging

BIOM 611	**Interventional Treatment Systems**	**3(3,0)**
This course introduces students to the contributions of technology to direct disease treatment. It highlights the need for reliable technology development for surgical suite healthcare interfaces. The emphasis will be on assessing the wide variety of technologies that have made surgical procedures more reliable, less traumatic, and shorter in duration, as well as understanding materials and know-how advances that lead to the development of technologies allowing minimally invasive treatment of various diseases. Covered topics include anesthesia/monitoring devices, intraoperative neurophysiological monitoring, spontaneous activity, angioplasty, stents, embolic filters, cardiac ablation catheters, stereotactic procedures, and clinical applications. **Prerequisite**: BIOM 414.		

BIOM 612	**Emerging Techniques in Healthcare**	**3(3,0)**
This course introduces students to new treatment and diagnosis strategies, as well as new applications of existing technologies, which have emerged a wide range of ideas as case studies in innovation. It highlights the factors determining the degree to which these techniques become accepted. The emphasis will be on proving the efficacy of the emerging medical technologies. Covered topics include hyperbaric oxygen therapy, indications and outcomes for hyperbaric oxygen treatment, delivery strategies for image-guided thermal therapy, electrotherapy, hearing and audiology assessment, pure-tone audiometry, speech recognition testing, spontaneous otoacoustic emissions (SOAE), immittance audiometry, slit lamp, ophthalmology sets, ear, nose and throat (ENT) devices. **Prerequisite**: BIOM 417.		

BIOM 613	Human Performance Engineering	3(3,0)
This course describes concepts, methods, and tools that strive to treat each area with the engineering rigor routinely applied to artificial systems. It emphasizes the evaluation of an individual's performance capacities, the design of assistive devices, and the design of operator interfaces for medical instruments. Importance is thus placed on a combination of cause-and-effect and statistical models, measurements of varying degrees of sophistication that are selected to fit the needs of a particular circumstance, and various types of analyses. Covered topics include gait analysis, neuromuscular functional unit, range of motion and extremes of motion, endurance, reliability, limitations, analysis of sensory-motor control performance, measurement instruments and procedures, models of human mental processing and performance, and physical task analysis. **Prerequisite**: BIOM 530.		

BIOM 621	Cardiovascular Explorations and Angiographic Procedures	3(3,0)
This course describes the interaction between biomechanics and medical imaging disciplines through a discussion of various imaging modalities and techniques used for the diagnosis of heart and vessel complications. It emphasizes the study of blood flow, investigation of vessel properties, assessment of artery dimensions and obstructions, and monitoring of injected catheters and/or stents. The interests and principles of non-invasive methods such as ultrasound and NMR will be discussed in detail. The purposes of X-ray-based interventional imaging systems will also be presented. Covered topics include Colored Doppler, Cardiac MRI, Cardiac Function, Atherosclerosis, Carotid Bifurcation, Brain Perfusion, Fluoroscopy, and contrast agents. **Prerequisite**: BIOM 522.		

BIOM 622	MRI Research and Innovations	3(3,0)
This course introduces students to the latest improvements in diagnosis and healthcare follow-up using magnetic resonance imaging systems. The emphasis will be on presenting MR sequence engineering applications in diverse medical fields and discussing MR-based spectroscopy principles and objectives. The MR safety, complications, definition of artifacts, limitations, and associated proposed solutions will be detailed. Covered topics include Fast Spin Echo, FLAIR, Time of flight, Diffusion Weighted Imaging, Parallel Imaging, Magneto hydrodynamics, Magnetic susceptibility, aliasing, and saturation. **Prerequisite**: BIOM 522.		

BIOM 623	Functional and Molecular Imaging	3(3,0)
This course introduces students to the in vivo characterization of biological processes at the cellular and molecular levels and the visualization of in vivo physiologic or biochemical processes achieved with different imaging modalities, mostly MRI, PET, and SPECT. The course will highlight the increasing attention this type of imaging has received in recent years because imaging the distribution of targeted molecules allows the tracking of biochemical processes before their physiological consequences appear. Several applications in neurological studies and cardiovascular explorations are to be described. Covered topics include Kinetic modeling, parametric imaging, glucose metabolism, radioactive tracer, regional cerebral blood flow, regional cerebral		

oxygen extraction fraction (rCOEF), and arterial oxygen concentration (CaO2). **Prerequisite**: BIOM 522 and BIOM 530.

Clinical Engineering and Bioinformatics

BIOM 631	**Risk Management**	**3(3,0)**
This course describes the deep roots inside health care of the organized effort to identify, assess, and reduce physical and financial risk to patients, staff, and businesses. The emphasis will be on new initiatives by international regulatory agencies to inject risk management techniques into the development and use of medical devices. Also, the course will discuss the risk management model, process, steps, regulations, assessment, and identification. Covered topics include Enterprise risk, Total quality management (TQM), Performance improvement (PI), Failure mode and effect analysis (FMEA), Corrective and preventive action (CAPA), Risk analysis–ISO/IEC 14971, Root cause analysis (RCA).		

BIOM 632	**Health-care Facility Management**	**3(3,0)**
This course presents procedures followed for medical and health services management. It covers the duties of the administrator and his assistants, as well as the workflow between staff of different services and departments. It emphasizes credentials, quality control, human resources, finances, recovery, insurance, sterilization, infection control, and health safety procedures. **Prerequisite**: BIOM 421.		

BIOM 633	**Medical Technology & Ethics**	**3(3,0)**
This course introduces students to the ethical dilemmas and challenges that have emerged with the positive outcomes of biomedical engineering regarding its responsibility in developing new treatment modalities that have significantly improved medical care and the quality of life for patients. The course will stress the involvement of humans in clinical research, the definition of death and the issue of euthanasia, animal experimentation and human trials for new medical devices, patient access to sophisticated and high-cost medical technology, and the regulation of new biomaterials and devices. Covered topics include professions, sources of professional ethics, professional integrity, responsibility, code, euthanasia, animal experimentation, regulation of medical device innovation, ethical issues in emergency use, ethical issues in treatment use, and the Safe Medical Devices Act. **Prerequisite**: BIOM 531.		

BIOM 651	**Medical Informatics and Artificial Intelligence**	**3(3,0)**
This course describes the growth of the bioinformatics field, its complexity, and its content. It will consist of two parts. The first is defined as non-artificial intelligence decision-making and devoted to areas that form a key “core” of computer technologies such as hospital information systems (HIS), computer-based patient records (CPR), communications and standards. The second part corresponds to artificial intelligence-based topics containing expert systems knowledge-based systems neural networks. Covered topics include Patient Database Strategies, Patient Management, Clinical Decision Support Systems, Computer Networks in Health Care, HL7, PACS, Decision-Theoretic Models, Statistical Models, Decision Making, Artificial Neural Networks, Training Algorithms, Clinical Decision Systems, and Expert System Process Models.		

BIOM 652	Bio-computation	3(3,0)
This course refers to several areas of research at the boundary between computation and biology. The emphasis will be on computational biology, natural computing via the use of naturally inspired computing models to solve mathematical problems, and the attempt to exploit biomolecules and cells to perform computations. It will focus on DNA computing, in which one uses DNA molecules and their interactions to perform computations, as well as recent promising models such as membrane computing. Covered topics include DNA sequencing, Polymerase chain reaction (PCR), Adleman's experiment, Stranded DNA, DNA computing on surfaces, Genomic databases, and Bio-computational Models.		

BIOM 653	Biometrics	3(3,0)
This course deals with the automatic recognition of individuals based on statistical analysis of physiological and/or behavioral characteristics. The emphasis will be on biometric characteristics, defined as human physiological or behavioral characteristics that are unique, universal, stable, and collectible. Covered topics include biometric system structure, verification system, identification system, feature extraction, matching, decision, performance evaluation, fingerprint, palm print, face, iris, hand vein thermogram, DNA, ear, odor, etc.…		

Artificial Organs

BIOM 641	Prostheses	3(3,0)
This course describes the fundamentals of substitutive medicine. It stresses the interest in an engineered device or the transplantation of organs, tissues, or cells' ability to substitute for most organs and body functions. Highlights on categories, types, nature, and principles of different artificial organs will be given. Covered topics include Heart Valve Prostheses, Vascular Grafts, Hyperplasia, Graft Infections, Liver Support Systems, Nerve Guidance Channels, ENT Replacement Devices, Artificial Blood, and artificial skin. **Prerequisite**: BIOM 519.		

BIOM 642	Transport Phenomena	3(3,0)
The intention of this course is to couple the concepts of transport phenomena with chemical reaction kinetics and thermodynamics to introduce the field of reaction engineering. It encompasses the subjects of momentum transport (viscous flow), energy transport (heat conduction, convection, and radiation), and mass transport (diffusion). The media in which the transport occurs is regarded as continual; however, some molecular explanations are discussed. The continuum approach is of more immediate interest to engineers, but both approaches are required to thoroughly master the subject. Covered topics include Microvascular Heat Transfer, Interstitial Transport in the Brain, Arterial Wall Mass Transport, and Concepts of Biomimicry. **Prerequisite**: BIOM 542.		

BIOM 643	Genetic and Tissue Engineering	3(3,0)
This course introduces students to unprecedented insight into the inner workings of the most basic structures of living tissues due to the information revealed by revolutionary undertakings, such as the human genome project. The attention will be		

focused on manipulating molecular architecture structures for therapeutic purposes. It will describe the techniques that have been developed to transplant genetic material into a variety of living tissues. Also, the ability to affect the future of many areas of disease treatment will be discussed, as well as developments in the field of tissue engineering. Covered topics include transgenic animals, DNA microinjection, embryonic stem (ES) cell technology, cloning, tissue regeneration, fluid-induced shear, micropipette aspiration, chondrocytes, scaffold materials, and protein coating. **Prerequisite**: BIOM 416.

Mechanical Engineering Program

The following study plan summarizes the courses and credit distribution for the Master of Science (MS) in Mechanical Engineering. The following study plan serves as a roadmap for a smooth progression toward graduation.

Course #	Title	Credits	Prerequisites
ENGR 600	Engineering Research Methods	3	
MECH 690	Capstone Research Project (non-thesis option)	3	ENGL 217
MECH 695A	Thesis I (thesis option)	3	Co-req: ENGL 217
MECH 695B	Thesis II (thesis option)	3	MECH 695 A
MECH 6xx	Technical Elective I	3	
MECH 6xx	Technical Elective II	3	
MECH 6xx	Technical Elective III (non-thesis option)	3	
MECH 6xx	Technical Elective IV (non-thesis option)	3	

A. Engineering Research Methods

The research methodology course is mandated by the MEHE. This course must be taken by all MS bound students. However, the specific experiences organized around the general topics may be tailored to meet the program's need. The description of the Engineering required course is described below.

ENGR 600	**Engineering Research Methods**	**3(3,0)**
This course introduces students to quantitative and qualitative methods for engaging in meaningful research. The student, at the end of the course, will attain skills in research intent and design, methodology and technique, format and presentation, and data management. Throughout the course, the student's ability to use this knowledge to become a more effective researcher will be developed. In particular, the student will be able to develop a hypothesis about a research problem and develop related questions; frame the problem with the correct research methodology; collect data that accurately addresses the research problem; measure the effectiveness of a solution methodology; analyze data to make informed decisions; provide technical documentation of all the phases of a research project; evaluate the		

feasibility of research proposals; and present data to support decisions in front of stakeholders.

B. Research Project/Thesis

MECH 690	Capstone Research Project	3(3, 0)
A capstone course requires group work in one of the emphasis areas offered by the Department. The project is to be carried out under the supervision of a full-time faculty member and culminated in a formal written and oral report (refer to college guidelines related to the graduation project's structure and content). **Prerequisite:** ENGL 217.		

MECH 695A	Master Thesis I	3(3, 0)
Includes guided review of research literature and/or pilot work relevant to the thesis topic. By the end of this course, the candidate for the MS degree should have established a hypothesis, a research methodology, and a work schedule for the completion of his/her thesis. A brief, written report is expected at the end of the course and should be approved by the research advisor(s). (This course may be repeated only once to accomplish its objective). **Co-requisite:** ENGL 217.		

MECH 695B	Master Thesis II	3(3, 0)
Continuation of MECH 695A Includes the completion and submission of a research thesis, the quality of which is judged acceptable by the jury committee established in accordance with the College of Engineering and Graduate Committee guidelines. (This course may be repeated only once to accomplish its objective). **Prerequisite:** MECH 695A.		

C. Elective Courses

As part of the program for the Master of Science in Mechanical Engineering, the student is required to take a total of 6 credit hours (12 credit hours for non-thesis option) of 600-level technical elective courses. These courses allow the student to attain in-depth knowledge and understanding in a focus area of interest. The student who chooses the non-thesis option can mix and match elective courses from different areas to acquire a broader knowledge of different Mechanical Engineering disciplines. The thesis option student should select, in coordination with the thesis advisor, the set of electives that best meet the requirements for the successful completion of his/her thesis. The MECH available technical elective courses are distributed in two areas:

1. Mechanical Design and Manufacturing
2. Energy and Thermo-fluid Systems

It is highly recommended that students take elective courses from the list below after completing the mandatory requirements in the related area. Students may select technical electives from other programs subject to the approval of the thesis committee. The list of recommended technical electives is given below.

Course #	Title	Credits	Prerequisites
Mechanical Design and Manufacturing			

MECH 601	Advanced Mechanics of Materials	3	MECH 320
MECH 602	Pressure Vessel and Piping Design and Analysis	3	
MECH 606	Fatigue and Fracture Mechanics Design and Evaluation	3	MECH 320; MECH 421
MECH 608	Advanced Manufacturing	3	MECH 422
MECA 604	Design of Mechanisms	3	MECH 321
MECA 607	Manufacturing System & Supply Chain Design	3	MECH 422
MECA 608	Lean/ Six Sigma Processes	3	
MECH 685	Advanced Topics in Mechanical Engineering	3	
Energy and Thermo-fluid Systems			
MECH 603	Combustion Engineering	3	MECH 334
MECH 604	Solar Energy	3	MECH 330 or MECH 333
MECH 605	Turbomachinery	3	MECH 335
MECH 607	Advanced Heat Transfer	3	MECH 431
MECH 609	Advanced Computational Fluid Dynamics	3	MECH 530
MECH 610	Advanced Fluid Mechanics	3	MECH 335
MECH 697	Advanced Topics in Mechanical Engineering	3	

Courses Description

Mechanical Design and Manufacturing

MECH 601	**Advanced Mechanics of Materials**	**3(3,0)**
3-D Stress tensor and invariants; constitutive models; theories of failure for ductile and brittle materials; plane stress/plane strain elasticity; unsymmetrical bending of straight beams; shear center for thin-walled cross-sectional beams; bending of curved beams and rings; axisymmetric geometry and loading; elastoplastic analysis of thick-walled cylinders and autofrettage & shrink-fitting residual stresses; rectangular & circular thin plates; circular thick plates; Beam on elastic foundation theory and practice use of Roark's formula. **Prerequisite**: MECH 320. On demand.		

MECH 602	**Pressure Vessel and Piping Design & Analysis**	**3(3,0)**
Stress analysis and evaluation of thin-walled pressure vessels and piping components; material properties and temperature limit; design philosophy of ASME Section VIII, Division 1; design philosophy of Section VIII, Division 2; design calculations using Section VIII, Division 1; design calculations using B 31.3 Piping code; flange selection based on P/T ratings – ASME/B 16.5 / 16.47 standards; fabrication, inspection and testing of pressure vessels; safety valves; in-service inspection & monitoring; practical applications; design project. On demand.		

MECH 606	Fatigue and Fracture Mechanics Design and Evaluation	3(3,0)
Material properties; stress intensity calculation; Brief S-N method used in non-pressurized mechanical components design: S-N method used in pressurized mechanical components design; effects of cracks and notches; fundamental of linear elastic fracture mechanics (LEFM) principles; crack-tip stress intensity factor calculations; fracture toughness evaluation; codes & standards; crack growth models, the use of finite element method in evaluating fatigue crack propagation life. **Prerequisite**: MECH 320 and MECH 421. On demand.		

MECH 608	Advanced Manufacturing	3(3,0)
Overview of advanced manufacturing: engineering materials, metal forming, particulate processing, solidification processes; non-traditional machining, understanding metrology and instrumentations; joining & assembly processes; micro-fabrication and nanofabrication technologies; automation technologies; production planning, control, and inspection; industrial visits. **Prerequisite**: MECH 422.On demand.		

MECH 685	Advanced Topics in Mechanical Engineering	3(3,0)
This course is designed to enable students to study a given advanced topic of interest, which is carefully selected from mechanical engineering-related topics. The content outline of such a topic is to be determined by the instructor and to be approved by the department Chair. **Prerequisite**: Instructor's consent. On demand.		

Energy and Thermo-Fluid Systems

MECH 603	Combustion Engineering	3(3,0)
Fuels and their properties; review of basic thermodynamics and gaseous mixtures; combustion thermodynamics: stoichiometry; the first and second Laws of thermodynamics applied to combustion; composition products in equilibrium; fundamentals of combustion; applications. **Prerequisite**: MECH 334. On demand.		

MECH 604	Solar Energy	3(3,0)
Solar geometry for stationery and tracking systems; solar energy availability and measurement; radiative, conductive, and convective heat transfer pertinent to simple solar collectors; flat plate collectors and concentrators; energy storage; project. **Prerequisite**: MECH 330 or MECH 333. On demand.		

MECH 605	Turbomachinery	3(3,0)
This course involves the design of turbo-compressors. It includes a review of thermo-fluids, compressible flow, diffusion processes, centrifugal compressors, swept vanes, velocity triangles, slip factor, axial compressors, stage pressure rise, stage reaction and loading, compressor map and performance, blockage factor, aerofoil aerodynamics, tip clearance; CFD and axial compressor design projects. **Prerequisite**: MECH 335. On demand.		

MECH 607	Advanced Heat Transfer	3(3,0)
Derivation of energy and mass conservation equations with constitutive laws for conduction, convection, radiation, and mass diffusion; dimensional analysis; heat exchangers; boiling and condensation. Prerequisite: MECH 431. On demand.		

MECH 609	Advanced Computational Fluid Dynamics	3(3,0)
Structured and unstructured mesh, orthogonal and non-orthogonal grids; discretization of the general transport equation using the finite volume method (diffusion. Convection, source and transient term discretization); boundary conditions; various solvers; discretization of incompressible flow equations using finite volume method; derivation of the pressure correction equation; the SIMPLE algorithm; comparison of different convection schemes using Fluent solver; application of the finite volume method on steady state and transient 1D and 2D problems. **Prerequisite**: MECH 530		

MECH 610	Advanced Fluid Mechanics	3(3,0)
Surface tension; vapor pressure and cavitation; integral and differential forms of continuity and momentum equations on a fixed and deforming control volume; boundary layer; dimensionless analysis of the equations of motion; introduction to microflow applications. **Prerequisite:** MECH 335.		

MECH 685	Advanced Topics in Mechanical Engineering	3(3,0)
This course is designed to enable students to study a given advanced topic of interest, which is carefully selected from mechanical engineering-related topics. The content outline of such a topic is to be determined by the instructor and to be approved by the department Chair. **Prerequisite**: Instructor's consent. On demand.		

Mechatronics Engineering Program

The following study plan summarizes the courses and credit distribution for the Master of Science (MS) in Mechatronics Engineering. The following study plan serves as a roadmap for a smooth progression toward graduation.

Course #	Title	Credits	Prerequisites:
ENGR 600	Engineering Research Methods	3	
MECA 690	Capstone Research Project (non-thesis option)	3	ENGL 217
MECA 695A	Thesis I (thesis option)	3	Co-req: ENGL 217
MECA 695B	Thesis II (thesis option)	3	MECA 695A
MECA 6xx	Technical Elective I	3	
MECA 6xx	Technical Elective II	3	
MECA 6xx	Technical Elective III (non-thesis option)	3	
MECA 6xx	Technical Elective IV (non-thesis option)	3	

A. Engineering Research Methods

The research methodology course is mandated by the MEHE. This course must be taken by all MS bound students. However, the specific experiences organized around the general topics may be tailored to meet the program's need. The description of the Engineering required course is described below.

ENGR 600	**Engineering Research Methods**	**3(3,0)**
This course introduces students to quantitative and qualitative methods for engaging in meaningful research. The student, at the end of the course, will attain skills in research intent and design, methodology and technique, format and presentation, and data management. Throughout the course, the student's ability to use this knowledge to become a more effective researcher will be developed. In particular, the student will be able to develop a hypothesis about a research problem and develop related questions; frame the problem with the correct research methodology; collect data that accurately addresses the research problem; measure the effectiveness of a solution methodology; analyze data to make informed decisions; provide technical documentation of all the phases of a research project; evaluate the feasibility of research proposals; and present data to support decisions in front of stakeholders.		

B. Research Project/Thesis

MECA 690	**Capstone Research Project**	**3(3, 0)**
A capstone course requires group work in one of the emphasis areas offered by the Department. The project is to be carried out under the supervision of a full-time faculty member and culminated in a formal written and oral report (refer to college guidelines related to the graduation project's structure and content). **Prerequisite:** ENGL 217.		

MECA 695A	Master Thesis I	3(3, 0)
Includes guided review of research literature and/or pilot work relevant to the thesis topic. By the end of this course, the candidate for the MS degree should have established a hypothesis, a research methodology, and a work schedule for the completion of his/her thesis. A brief, written report is expected at the end of the course and should be approved by the research advisor(s). (This course may be repeated only once to accomplish its objective). **Co-requisite:** ENGL 217.		

MECA 695B	Master Thesis II	3(3, 0)
Continuation of MECA 695A Includes the completion and submission of a research thesis, the quality of which is judged acceptable by the jury committee established in accordance with the College of Engineering and Graduate Committee guidelines. (This course may be repeated only once to accomplish its objective). **Prerequisite:** MECA 695A.		

C. Elective Courses

As part of the program for the Master of Science in Mechatronics Engineering, the student is required to take a total of 6 credit hours (12 credit hours for non-thesis option) of 600-level technical elective courses. These courses allow the student to attain in-depth knowledge and understanding in a focus area of interest. The student who chooses the non-thesis option can mix and match elective courses from different areas to acquire a broader knowledge of different Mechatronics Engineering disciplines. The thesis option student should select, in coordination with the thesis advisor, the set of electives that best meet the requirements for the successful completion of his/her thesis. The MECA available technical elective courses are distributed in two areas:

1. Automation
2. Mechanisms and Robotics

It is highly recommended that students take elective courses from the list below after completing the mandatory requirements in the related area. Students may select technical electives from other programs subject to the approval of the thesis committee. The list of recommended technical electives is given below.

Course #	Title	Credits	Prerequisites
Automation			
MECA 601	Advanced Mechatronics System Design	3	MECA 443
MECA 602	Multi-Agent System MAS	3	
MECA 607	Manufacturing System & Supply Chain Design	3	MECH 422
MECA 608	Lean/ Six Sigma Processes	3	
MECA 685	Advanced Topics in Mechatronics Engineering	3	
Mechanisms and Robotics			
MECA 603	Advanced Robotics	3	MECA 544
MECA 604	Design of Mechanisms	3	MECH 321

MECA 605	Spatial Mechanisms	3	MECA 541
MECA 606	Compliant Mechanisms	3	MECH 520; MECH 571
MECA 609	Advanced Control Theory	3	MECA 440
MECA 685	Advanced Topics in Mechatronics Engineering	3	

Courses Description

Automation

MECA 601	Advanced Mechatronics System Design	3(3,0)
This course uses computer-aided design methodologies to synthesize multivariable Mechatronics system design. Topics covered include sequential tasks integrating several engineering systems, finite state machine-based design, direct problems, indirect problems, multi-objective optimization problems, performance and robustness trade-offs, model-based compensators, and nonlinear effects. Prerequisite: MECA 443.		

MECA 602	Multi-Agent System MAS	3(3,0)
The course aims to present tools and methodologies for performing system realization in a multidisciplinary design context. The focus will be equally strong on all three aspects of the problem: (i) the multidisciplinary character of engineering systems, (ii) the design of these complex systems, and (iii) tools for realization. **Prerequisite**: Instructor's consent.		

MECA 607	Manufacturing System & Supply Chain Design	3(3,0)
This course focuses on decision-making for system design as it arises in manufacturing systems and supply chains. Students are exposed to frameworks and models for structuring the key issues and trade-offs. It also introduces various models, methods, and software tools for logistics network design, capacity planning and flexibility, make-buy, and integration with product development. Industry applications and cases illustrate concepts and challenges. **Prerequisite**: MECH 422.		

MECA 608	Lean/Six Sigma Processes	3(3,0)
Students of this course will develop a broad understanding of Lean/Six Sigma principles and practices, build the capability to implement Lean/Six Sigma initiatives in manufacturing operations, and learn to operate with an awareness of Lean/Six Sigma at the enterprise level. All course materials are organized around a common "single-point lesson" (SPL) format, with some of the SPLs provided by the instructor and guests and some developed and delivered by student teams. **Prerequisite**: Instructor's consent. On demand.		

MECA 685	Advanced Topics in Mechatronics Engineering	3(3,0)
This course is designed to enable students to study a given advanced topic of interest, which is carefully selected from the mechatronics engineering-related topics. The		

content outline of such a topic is to be determined by the instructor and to be approved by the department Chair. **Prerequisite**: Instructor's consent. On demand.

Mechanisms and Robotics

MECA 603	**Advanced Robotics**	**3(3,0)**
Current technology on robotics, sensing, and vision; Basic knowledge on how to make intelligent autonomous mobile robots using AI concepts; trajectory planning and obstacle avoidance; use of software packages, sensors, image acquisition and processing; autonomous mobile robots; applications of mobile robots; tele-robotics; future trends. **Prerequisite**: MECA 544.		

MECA 604	**Design of Mechanisms**	**3(3,0)**
Mobility analysis of mechanisms; kinematic chains and inversions; precision synthesis techniques (graphical and analytical methods); introduction to different optimization techniques; optimum synthesis of mechanisms using gradient-based and global intelligent optimization methods; creative mechanism design project. **Prerequisite**: MECH 321. Annually.		

MECA 605	**Spatial Mechanisms**	**3(3,0)**
General mobility criteria; describing spatial displacements; formulation of the kinematic equations; kinematic analysis and synthesis of spherical and spatial mechanisms; optimum synthesis of spherical and spatial kinematic chains; kinematics of robotic manipulators. **Prerequisite**: MECA 544.		

MECA 606	**Compliant Mechanisms**	**3(3,0)**
Nonlinear beam theory; pseudo-rigid body model (PRBM); Flexible link model (FLM); synthesis of partially compliant mechanisms using PRBM and FLM; synthesis of fully compliant mechanisms (rigid body displacement and kinetostatic synthesis); finite element application; size, shape, and topology optimization; research project**.** **Prerequisite**: MECH 520, MECH 571.		

MECA 609	**Advanced Control Theory**	**3(3,0)**
The course covers various forms of process control, including statistical process control, run-by-run and adaptive control, real-time feedback control, static optimization, optimal control for continuous-time systems, the tracking problem and other LQR extenders, adaptive and predictive control H-infinity controller design; Mu-synthesis; model and compensator simplification; and nonlinear effects. The assignments for the course comprise computer-aided (MATLAB®) design problems. **Prerequisite**: MECA 440. On demand.		

MECA 685	**Advanced Topics in Mechatronics Engineering**	**3(3,0)**
This course is designed to enable students to study a given advanced topic of interest, which is carefully selected from the mechatronics engineering-related topics. The content outline of such a topic is to be determined by the instructor and to be approved by the department Chair. **Prerequisite**: Instructor's consent. On demand.		

Faculty List

Al Wardany, Riad; Associate Professor, Ph.D. in Civil Engineering, University of Sherbrooke, 2005

Arid, Amal; Lecturer, Master's in Computer and Electrical Engineering, AUB, 2010.

Chhade; **Ayman**; Instructor, Master's degree in Mechatronics Engineering, Rafik Hariri University, 2015

Chaaban, Ahmad; Professor, Ph.D. in Mechanical Engineering, University of Waterloo, 1985.

Berjaoui, Omar; Instructor, Master in Mechatronics Engineering, RHU,2011.

Diab, Mohammad; Professor, Ph.D. in Biomedical Engineering, University of Compiegne, 2007.

Diab, Nadim; Associate Professor, Ph.D. in Mechanical Engineering, American University of Beirut, 2013.

Hajj Chehade, Rana; Assistant Professor, Master 2 in Civil Engineering, Lille University, 2015.

Hijazi, Toufic; Professor, Ph.D. in Electrical Engineering, Clarkson University, 1988.

Kaderi, Mohamad; Instructor, MS in Mechatronics Engineering, Rafik Hariri University, 2024

Kasab, Milana; Lecturer, M.Sc. in Biomedical Engineering, Rafik Hariri University, 2021.

Koubeissi, Ahmad; Associate Professor, Ph.D. in Robotics and Automation Engineering, university of Lille, 2015.

Maatouk Maya; Instructor, M.Sc. in Mechatronics Engineering, Politecnico di Torino,2021.

Machaka, Muheiddein; Associate Professor, Ph.D. in Civil Engineering, Beirut Arab University, 2015.

Mohydeen, **Ali**; Lecturer, Ph.D. in Electronics, University of Nantes, 2019

Mrad, May; Instructor, M.Sc. in Civil & Environmental Engineering, Rafik Hariri University, 2018.

Moustafa, Ousama; Associate Professor, Ph.D. in Engineering, University le Havre,2008.

Reslan, Nada; Instructor, Master of Science in Structural Engineering, BAU,2012

Sabbah, Maher; Associate Professor, Ph.D. in Biomedical Engineering, University of Technology of Compiègne (UTC) France and Université Claude Bernard, Lyon, 2016.

Taha, Mohamad; Professor, Ph.D. in Electrical Engineering, Aston University, 1992.

Zantout, Rached; Professor, Ph.D. in Communications Engineering, Ohio State University, 1994.

Younis, Manar; Lecturer, Ph.D. in Mechanical Engineering, American University of Beirut, 2021

GRADUATE STUDIES FORMS

PROPOSED PLAN OF STUDY – GS1

The student and advisor should fill out this form before the second semester of graduate studies. The student should commit to the MS track (thesis or non-thesis), the plan of study, and courses. The form helps in following up on the student's progress until graduation.

Student Name		**ID #**	
Major		**Proposed Degree**	
MS Track	☐ Thesis track	☐ Non-thesis (CRP) track	
Thesis / Capstone Research Project (CRP)			
Proposed Title			

Research Advisors			
Role	**Name**	**Signature**	**Date**
Advisor			
Co-Advisor			
Co-Advisor			

Note: Please Attach the Updated Student Contract Sheet

Category	**Course #**	**Course Name**	**Where?**	**When?**	**# Credits**	**Grade**
Background Courses (credits do not count toward degree)						
Transfer Credits						
Mandatory Courses						
Elective Courses						
Total Credit Hours that count toward the degree						

500 level _____ 400 level _____

THESIS PLAN – GS2

Students on the thesis track should fill out this form to plan for the thesis defense.

Student Name		**ID #**	
Major		**Proposed Degree**	
MS Track	☐Thesis track ☐Project track		

Thesis/Project Title and Summary

Tentative Dates to Complete Milestones	
Thesis/Project Defense	
Graduation Date	

Thesis/Project Committee (optional for Project Track)			
Role	**Name**	**Signature**	**Date**
Chair			
Member			
Member			
Member			

Approvals			
	Name	**Signature**	**Date**
Department Chairperson			
College Dean (for the CGSC)			

READINESS REPORT FOR THESIS / CRP DEFENSE – GS [3]

The Main Research Advisor should fill out this form.

Student Name		**ID #**	
Major		**Degree**	
Undergraduate Degree			
Major		**Institution**	
GPA		**Class of**	
Prior Practical Experience			
Years of Experience			
Type of Experience			
Graduate Studies			
Major			
Enrollment Date		**Graduation Date**	
GPA		**Thesis / Project Advisor**	
Thesis / Project Title			
Performance Evaluation			
Evaluate the thesis/Project on a scale from 1 to 4 (1 being minimally acceptable) on the basis of the following criteria: a. Independent research and generating new concepts and valuable conclusions [ ] b. Creativity and critical thinking [ ] c. Writing skills [ ]			
Overall Assessment of The Thesis / Project (Advisor)			
Date of Submission of the Final Draft of Thesis / Project *			
Date:		**Signature:**	

* The final draft of the report must be submitted to each member of the Jury Committee at least two weeks (Thesis option) prior to the date of the thesis defense, or a week (non-thesis option) before the CRP presentation.

ASSESSMENT OF GRADUATE STUDENT'S PERFORMANCE GS 4

Student Name		**ID #**	
Major		**Degree**	

Undergraduate Degree			
Major		**Institution**	
GPA		**Class of**	

Prior Practical Experience			
Years of Experience			
Type of Experience			
Graduate Studies			
Major			
Enrollment Date		**Graduation Date**	
GPA		**Thesis Advisor**	
Thesis Title			

Performance Evaluation
Rate the student on a scale from 1 to 4 (1 being minimally acceptable) on the basis of the following criteria: a. Ability to conduct independent research and generate ideas ( ) b. Creativity and critical thinking ( ) c. Writing skills ( )

Overall Assessment of Graduate performance (Thesis Advisor)
Date: **Signature:**

MS REQUIREMENTS COMPLETION CHECKLIST – GS [5]

This form shall be completed by the GSRC coordinator and kept in the student's permanent record for future reference, assessment of graduate program and quality assurance measures.

Student Name		**ID #**	
Enrollment Date			
Graduation Date			
Academic Advisor			
Thesis/CRP Advisor			
Thesis/CRP Title			
Thesis/CRP Sponsor			

Graduate Studies Forms	**Date Completed**
GS-1	
GS-2	
GS-3	
GS-4	

Date thesis submitted to the Library	
Signature of the Librarian	

Role	**Name and Signature**	**Date**
Thesis/CRP Committee Chair		
Department Chair		
College Dean		
GSRC Coordinator		
Registrar		

2024
2025

Rafik Hariri University
Office of the Registrar

Mechref, Lebanon
Tel: 00961 5 60 30 90
P.O. Box: 10 Damour - Chouf 2010
Fax: 00961 5 60 18 30
Extension: 615-618

Email: registrar@rhu.edu.lb

www.rhu.edu.lb