

Master's Program in Construction Materials Techniques Engineering	
برنامج الماجستير اختصاص تقنيات هندسة المواد الإنشائية	
Program Educational Objectives	الأهداف التعليمية للبرنامج
1. Equip students with advanced scientific and engineering foundations in structural material technologies, enabling them to solve complex problems in professional or research contexts. 2. Develop graduates' capabilities to conduct innovative applied research aligned with scientific and technological advancements in the construction field. 3. Empower graduates to utilize advanced testing, analytical, and modeling techniques to evaluate and enhance material performance. 4. Prepare highly competent professionals for careers in academia, research institutions, or design and construction firms. 5. Promote commitment to professional ethics, teamwork, and innovation in addressing construction challenges.	1. تزويد الطلبة بأسس علمية وهندسية متقدمة في تقنيات المواد الإنشائية تمكّنهم من حل المشكلات المعقدة في بيئات مهنية أو بحثية. 2. تطوير قدرات الخريجين على إجراء أبحاث تطبيقية مبتكرة تواكب التقدم العلمي والتقني في مجال الإنشاءات. 3. تمكين الخريجين من استخدام تقنيات القياس والتحليل والنمذجة المتقدمة لتقييم وتحسين أداء المواد. 4. إعداد كوادر ذات كفاءة عالية للعمل في المؤسسات الأكاديمية، أو الهيئات البحثية، أو شركات التصميم والتنفيذ. 5. تعزيز الالتزام بأخلاقيات المهنة والعمل الجماعي والابتكار في معالجة التحديات الإنشائية.
(Student Learning Outcomes)	ثانياً: مخرجات التعلم للبرنامج
Upon successful completion of the program, the student will be able to: 1. Apply advanced theories in material mechanics and performance testing to solve sophisticated engineering problems. 2. Design and conduct advanced laboratory experiments and analyze data accurately to assess material properties. 3. Develop innovative research-based solutions addressing performance and sustainability challenges in construction materials. 4. Utilize modern tools and numerical modeling techniques to interpret material behavior under complex conditions. 5. Communicate research findings effectively through professional academic and technical presentations. 6. Demonstrate a thorough understanding of ethical, legal, and professional responsibilities in material usage. 7. Collaborate efficiently in multidisciplinary teams within professional or research environments.	بنهاية البرنامج، سيكون الطالب قادراً على: 1. تطبيق النظريات المتقدمة في ميكانيكا المواد واختبارات الأداء في حل مشكلات هندسية متقدمة. 2. تصميم وتنفيذ تجارب مخبرية متقدمة وتحليل بياناتها بدقة لتقييم خصائص المواد الإنشائية. 3. تطوير حلول مبتكرة قائمة على البحث العلمي للمشكلات المتعلقة بأداء واستدامة المواد. 4. استخدام أدوات وتقنيات حديثة في النمذجة العددية والمحاكاة لتفسير سلوك المواد تحت ظروف معقدة. 5. التواصل الفعال وعرض نتائج البحث العلمي بأسلوب أكاديمي احترافي. 6. إظهار فهم عميق للجوانب الأخلاقية والقانونية المتعلقة باستخدام المواد الإنشائية. 7. العمل بكفاءة ضمن فرق متعددة التخصصات في بيئات مهنية أو بحثية. 8. متابعة التطورات العلمية والتقنية والمشاركة في برامج التعلم المستمر.

8. Engage in lifelong learning and keep up with technological and scientific advancements.	
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Mode and Duration of Study

The Master's Program in Construction Materials Techniques Engineering is structured over a period of **two academic years** of full-time study.

- **First Year:** Students complete a structured curriculum comprising core and elective courses across two semesters, focused on foundational knowledge, advanced material science, and practical laboratory skills.
- **Second Year:** Students engage in independent research under academic supervision, culminating in the submission and defense of a **Master's thesis**.

The program offered in **full-time** modes to accommodate working professionals, with appropriate adjustments to the course load and thesis timeline, as approved by the department and university council.

Graduation Requirements

To graduate from the Master's Program in Construction Materials Engineering Techniques, students must fulfill the following requirements:

- **Successful completion of coursework** totaling **24 credit hours**, including both core and elective subjects.
- **Completion of a Master's thesis**, equivalent to **12 credit hours**, based on original research in a specialized area of construction materials engineering.
- **Total credit hours required** for graduation: **36 credits**.

Additional provisions:

- A student who **fails a course** is permitted **one opportunity for a re-examination or course repetition**.
- Failure in the second attempt will result in **dismissal from the program**, in accordance with institutional academic regulations.
- The thesis must demonstrate scientific rigor, originality, and relevance to current challenges or innovations in construction materials.

First Semester				
Code	Subject	Hrs. Practical	Hrs. Theory	Credit
BCM 01	Advanced Engineering Statistics	-	2	2
BCM 02	Advanced Concrete Technology	2	2	3
BCM 03	Advanced Construction Materials	-	2	2
BCM**	Selective Topics	-	3	3
BCM 09	English Language	-	2	2
	Sum. of Credits			12
Second Semester				
Code	Subject	Hrs. Practical	Hrs. Theory	Credits
BCM 10	Special Construction Materials	-	2	2
BCM 11	Advanced Highway Materials	-	3	3
BCM 12	Durability of Concrete	-	2	2
BCM 13	Materials Test and Quality Control	2	2	3
BCM 14	Research Methodology	-	2	2
	Sum. of Credits			12
Master thesis: 12 Credits				
Total Credits: 36				

ELECTIVE

Code	Subject	Hrs. Practical	Hrs. Theory	Credit
BCM 04	Advanced ceramic materials	-	3	3
BCM 05	Advanced Concrete Mechanics	-	3	3
BCM 06	Chemistry of Cement	-	3	3
BCM 07	Building Repair Materials and Techniques	-	3	3
BCM 08	Masonry Structures	-	3	3