



Course Specification

— (Bachelor)

Course Title: **Graduation Project (1)**

Course Code: **494-MEC-2**

Program: **Bachelor of Science in Engineering**

Department: **Mechanical Engineering**

College: **College of Engineering**

Institution: **Najran University**

Version: **1.0**

Last Revision Date: **27 February 2024**



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A. General information about the course:

1. Course Identification

1. Credit hours: (2)

2. Course type

A. University College Department Track Others
 B. Required Elective

3. Level/year at which this course is offered: (Fifth Year \ Level 9)

4. Course general Description:

With faculty supervision, students must integrate and apply what they have learned from earlier academic work and field experiences for their graduation project, which serves as the course's capstone assignment. These projects could be "new," a continuation of work from earlier classes, or they could be projects from earlier courses that have been greatly enlarged and improved for the thesis. It has two phases- to be taken in consecutive two semesters at the senior level.

The theme for their group projects is one that the students suggest at the start of the semester. Weekly meetings in class are held for project students to discuss their research and present their progress for comments and advice from their classmates and teachers. At the end of the semester, students present their thesis projects to the supervising committee.

5. Pre-requirements for this course (if any):

NIL

6. Co-requisites for this course (if any):

NIL

7. Course Main Objective(s):

- 1.Ability to formulate design project and manage it.
- 2.Ability to review related data and knowledge from credible sources.
- 3.Ability to communicate orally and to report technically.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%
2	E-learning		
3	Hybrid		



No	Mode of Instruction	Contact Hours	Percentage
	<ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	15
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Review the available literature in the project domain.	7	Discussion rounds, homework, assignments	-Discussion, -Presentation
1.2	Identify and formulate mechanical problems in the area of Mechanical engineering	1	Discussion rounds, homework, assignments	-Discussion, -Presentation
2.0	Skills			
2.1	Design a system, component or process with defined constraints.	2	-Lectures -Discussion rounds Tutorials	-Presentation -Final Report Draft
2.2	Solve engineering problems and implement designed solution	2	-Lectures -Discussion rounds Tutorials	-Presentation -Final Report Draft
3.0	Values, autonomy, and responsibility			



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.1	Communicate effectively in written engineering report and in oral presentation	3	discussion rounds, homework, tutorials, assignments	-Discussion, -Presentation
3.2	Work effectively as a member of the team	5	discussion rounds, homework, tutorials, assignments	-Discussion, -Presentation
3.3	Plan a project effectively using project-planning techniques to ensure proper timing, budgeting and professional ethics.	4	discussion rounds, homework, tutorials, assignments	-Discussion, -Presentation

C. Course Content

No	List of Topics	Contact Hours
1.	Choose a project and write a proposal.	8
2.	Initial Student Presentations: project title, description, motivation and aims.	6
3.	Project planning, process, management activities, work breakdown, time estimation, milestones, activity sequencing, activity network, scheduling, Gantt charts and re-planning.	6
4.	Literature survey: search and review, tracing the information, critical evaluation, writing literature review, ethics and responsibilities.	5
5.	Software development, life cycle, models, assistance in writing the progress report	4
6.	Student presentations: project proposal: problem definition, objectives, justification, and approach.	8
7.	Final presentation & final report (committee)	8
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Logbook (supervisor)	Every week	10 %
2.	Mid Term Presentation	Week 4	20%





No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
3.	Final Report Draft (supervisor)	Week 8	30 %
4.	Presentation (examination panel)	Week 10	15 %
5.	Final Report Draft (examination panel)	Week 10	25 %

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Any available books in the library related to project work.
Supportive References	The students review the literature of the project from Published research articles
Electronic Materials	Youtube channel for project concepts
Other Learning Materials	The work is done by the students on the software related to the project (like AutoCAD, Ansys, COMSOL Multiphysics, ABACUS)

2. Required Facilities and equipment

Items	Resources
Facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	The department provides the classroom and Lab facilities needed by the students
Technology equipment (projector, smart board, software)	AutoCAD, Ansys, COMSOL Multiphysics, ABACUS
Other equipment (depending on the nature of the specialty)	Desktop Computer

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Lecture contents, organization	Peer Reviewer	The peer reviewer monitors a teaching session and evaluate the course instructor using peer evaluation form.
Lecturer interaction with students, use of learning resources, verbal communication	Peer Reviewer	The peer reviewer monitors a teaching session and evaluate the course instructor using peer evaluation form.



Assessment Areas/Issues	Assessor	Assessment Methods
Verification of students achievements	Independent faculty member	Review and verify the marking and grades of the students.
Improvement in teaching	Student surveys, Peer Evaluation	Teaching strategies could be improved based on the students feedback and peer evaluation.
Effectiveness of teaching and assessment	Students survey	Students evaluate the course instructor through survey and through edugate.
Extent of achievement of course learning outcomes	Quality coordinator	CLOSO program.
Quality of learning resources	Students survey	Questionnaire is administered in every semester

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	DEPARTMENT OF MECHANICAL ENGINEERING
REFERENCE NO.	
DATE	27/02/2024

