



**ATTACHMENT 2 (e)**

**Course Specifications**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**Course Specifications  
(CS)**



## Course Specifications

Institution Najran University	Date of Report 20/04/1438H
College/Department Engineering College / Electrical Engineering	

### A. Course Identification and General Information

1. Course title and code: Utilization of Electric Energy 417EE3			
2. Credit hours 3 ( 3 , 0 , 1 )			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Electrical Programs			
4. Name of faculty member responsible for the course Dr. Salim Nasar Mursal			
5. Level/year at which this course is offered: 10 <sup>th</sup> /5 <sup>rd</sup> year			
6. Pre-requisites for this course Fundamentals of Power Systems 426EE3			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="50%"/>
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="40%"/>
d. Correspondence	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="10%"/>
f. Other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			



## B Objectives

<p>1. What is the main purpose for this course?</p> <p>1. Understand Basic principles for using electrical energy in different applications.</p> <p>2. Understand Power quality issues.</p> <p>3. Understand the importance and the basics of renewable energy sources</p>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <p>None</p>

## C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
<b>1- Electric Lighting</b>	Week: 1,2	8
<b>2- Electric Wiring</b>	Week: 3,4,5	12
<b>3- Electric heating, cooling, welding and Electrolysis.</b>	Week: 6,7	8
<b>4- Power quality issues.</b>	Week: 8,9	6
<b>5- Power factor improvement.</b>	Week: 9,10	6
<b>6- Renewable energy sources.</b>	Week: 11	6
<b>7- Fundamentals of Solar and Wind Power Systems</b>	Week: 12,13,14,15	14



2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	15	None	0	None	60
Credit	3	1	none	0	None	3

3. Additional private study/learning hours expected for students per week.	4
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Classify the types of electric heating, Cooling, and welding.	Lecture and tutorial	Exams and quizzes
1.2	Illustrate the role and applications of electrolysis in industry.	Lecture and tutorial	Exams and quizzes
1.3	Describe the importance of renewable energy sources.	Lecture and tutorial	Exams and quizzes
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Apply concepts of lighting and illumination technology, show the types of electrical installation and their techniques and the protection systems used in buildings.	Lecture and tutorial	Exams and quizzes
2.2	Identify the power quality issues and analyze methods to improve the electric power factor.	Lecture and tutorial	Exams and quizzes
2.3			
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1			
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1			
<b>5.0</b>	<b>Psychomotor</b>		
5.1			

#### Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
<b>Knowledge</b>	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
<b>Cognitive Skills</b>	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
<b>Interpersonal Skills &amp; Responsibility</b>	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
<b>Communication, Information Technology, Numerical</b>	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize



<b>Psychomotor</b>	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

**Suggested assessment methods and teaching strategies are:**

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

#### 5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Test 1	6	20 %
2	Test 2	13	25 %
3	Report	00	5 %
4	Final Exam	End of semester	50%

#### D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
  - Teaching staff are available weekly for all the students and can answer any query that rises, beside the students can email their enquiries to the main lecture. Beside students have Open general discussions with other class mates.
  - 5 hours per week and can be arranged according to the student needs.

#### E. Learning Resources

1. List Required Textbooks  
 "Generation, Distribution & Utilization of Electrical Energy" by Wadhwa
2. List Essential References Materials (Journals, Reports, etc.)  
 None
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
  - "Mechanical and Electrical Systems in Buildings " Richard R. Jains,, William K. Y. Tao"
  - "The design of electrical services for buildings", F. Porges, 3<sup>th</sup> edition,
  -
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.  
 None

#### F. Facilities Required

- Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)  
 Laboratory with adequate daylight equipped with data projector.

2. Computing resources (AV, data show, Smart Board, software, etc.)
Different Software programs.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
None

## G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
Throughout the Course (Verbal Feedback): <ul style="list-style-type: none"> <li>• After the 3rd week.</li> <li>• At mid-semester.</li> <li>• <b>End-of-Course.</b></li> </ul>
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
<ul style="list-style-type: none"> <li>• Written feedback from a classroom observation that details judgment on teaching.</li> <li>• Written feedback that details judgment on course materials such as syllabi, handouts and exams.</li> <li>• Written documentation that details teaching contribution to the department.</li> </ul>
3 Processes for Improvement of Teaching
<ul style="list-style-type: none"> <li>• Learning from students feedback</li> <li>• Learning from instructor and department feedbacks</li> <li>• Learning/Using various teaching methods (lecturing, discussions, workshops, exams...)</li> <li>• Learning/Using various teaching medias (projector, whiteboard, videos, educational visits )</li> </ul>
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
Check marking by an independent member teaching staff of a sample of student work.





5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Ongoing updating and improving (during the course).
- Annual updating and improving (during summers).

Faculty or Teaching Staff: Dr. Salim Mursal

Signature: \_\_\_\_\_ Date Report Completed: 20/04/1438H

Received by: Dean/Department Head

Signature: \_\_\_\_\_ Date: / /1438H