



جامعة الملك فهد للبترول والمعادن
King Fahd University of Petroleum & Minerals
DEANSHIP OF ACADEMIC DEVELOPMENT
e-Learning Center

GUIDELINES FOR

ONLINE COURSE GRANTS





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1. INTRODUCTION

The Deanship of Academic Development (DAD) is interested in awarding grants to fund the development of some KFUPM courses into an online format. This grant program is part of the general KFUPM strategy of utilizing the benefits of Information Technology in teaching. The objective of the grant program is to encourage KFUPM faculty members to invest effort towards the careful design and development of comprehensive online courses which will be utilized to enhance teaching and learning. In addition to developing expertise in this field, this will also provide a basis for the future plan by the University to further expand the applications of online education at KFUPM.

Therefore, every academic year DAD will announce its annual Online Courses Grant. DAD is interested in receiving proposals from teams of KFUPM faculty members who are seriously interested in this field of education. The purpose of this document is to provide the necessary information needed by the faculty teams to prepare their proposals. Other useful documents and resources have also been prepared for faculty members to guide them during the process of online course development. These documents and resources can be accessed from the e-Learning Center website at the following link:

<http://www.kfupm.edu.sa/dad/elearn/services.html>.

In addition, the DAD has other documents and supplementary references in its Resource Center.

2. ONLINE COURSES

Online courses are becoming widely used in higher education institutions to provide learning material for both on-campus and off-campus students. One of the main advantages of online courses is the convenience that they provide to students in receiving education anywhere and anytime - a feature that can be utilized by traditional institutions to supplement face-to-face teaching and by distance education institutions to access a much wider audience beyond the students attending on-campus classes. Another advantage of online courses that is promoted by this grant is the opportunity to enhance learner-centered education which encourages students to be responsible for acquiring the knowledge themselves and, thus, becoming self-learners.



For the purpose of consistency, the following definitions will be adopted for all work related to this grant program:

An Online Course is a course that can be delivered completely through the web. The course is developed so that all course components including, lectures, communications, class management, and at least part of the students' work, can be conducted completely online.

Three delivery modes of the online course are now defined here:

Supplementary Mode: The online course is made accessible to the students, as a supplement to the traditional face-to-face teaching. There is no reduction in the classroom time. The use of web-based resources is a required component of the course, which also includes the use of web-based communication tools.

Blended Mode: The classroom instruction of a segment of the course is completely replaced with the online learning. The segment should be a complete self-contained part of the course based on a top level topic included in the course. The rest of the course is conducted based on the supplementary mode.

Completely Online Mode: The classroom time of the whole course is replaced by the online learning activities. All the course components including lectures, communications, class management, and at least part of the students' work, are delivered completely online. There can still be some face-to-face meetings during the course for necessary discussions and assessments.

3. ELIGIBILITY

All KFUPM faculty members are eligible to apply for this grant program. Due to the complex process of developing an online course, it is expected that teams will apply for the grant, rather than individuals. It is very important that the team includes all the expertise and skills needed to develop a good online course which is ready to be taught. This expertise includes in-depth knowledge of the course content (subject matter experts), instructional design, and information technology skills that will be needed to engage the



learners actively in the learning process and to make a good online presentation of the course material.

4. SELECTION CRITERIA

The selection of courses that will receive online grants is made based on the following criteria:

1. The average number of students taking the course per academic year.
2. The extent of disciplines served by the course.
3. The regularity of offering the course.
4. The extent of flexibility needed by students taking the course (e.g. part time students).
5. Benefits of putting the course online determined by DAD in accordance with the University vision in promoting online courses.
6. The evaluation of the online course proposal.

After receiving all proposals, DAD will rank the proposals according to the above criteria and decisions on approval of the proposals will be made accordingly.

5. CONDITIONS

The award of the grant will be subject to the following conditions:

- 5.a.** The maximum number of faculty members in a team is six. Subject matter experts should not exceed three members.
- 5.b.** A faculty member can not participate in more than one online course team for online course grant proposals submitted in the same year. However, faculty members involved in the technical part of the development (e.g. programmers, multimedia developers) may participate in at most two online courses after providing strong justification.



- 5.c. The duration of the grant is approximately two years and consists of two phases:
- (1) **The Development Phase:** in which all team members will fully develop the online course. The duration of this phase is 11 working months plus one month in the summer. However, if all team members could not stay one month in the summer or the team members are less than five, then the grant duration will be extended to more than twelve working months. The duration will be determined by the Deanship of Academic Development based on the formation of the team and the nature of the course.
 - (2) **The Implementation Phase:** in which two members of the team (one subject matter expert and one multimedia developer) will implement the online course after the development phase of the grant is completed. The period of this phase of the grant is one year (See section 7 of this guideline. It should be noted that the implementation period of the online course is three years. However, only the first year is considered as part of the grant period).
- 5.d. The concerned academic department shall evaluate and approve the proposal before submitting it to DAD. The department shall also agree to offer the online course once it is fully developed as proposed in the implementation and maintenance plan in the proposal (see section 7 of this guideline).
- 5.e. The team shall submit the course blueprint one month from the starting date of the project (A sample course blue print is attached in Appendix (A)).
- 5.f. The team shall submit three reports during the development phase of the grant; two progress reports and a final report along with all the deliverables at the end of this phase. Specific dates of these reports will be sent to the PI along with the approval letter of the proposal.
- 5.g. The team leader shall give a public presentation about the online course development 6 months from the starting date of the project.



- 5.h. Once the course is completed, it should be made accessible, continuously, to **all** students registered in the course.

6. DELIVERABLES

The team is expected to submit to DAD all the items and documentation that will make the course complete and ready to be taught fully online at the end of the grant period. This includes, but is not limited to, the following:

- A CD containing source files of complete course content and documentations.
- The WebCT course backup file after incorporating the course in WebCT with an appropriate design and with all necessary WebCT components.
- The implementation plan of the online course to meet DAD online course implementation requirements.
- The course evaluation and maintenance report as described in the next section.

7. IMPLEMENTATION AND MAINTENANCE PLAN

The goal of the implementation and maintenance plan is to ensure effective utilization of the online course once it is fully developed and to make sure that the objectives set for this grant have been fulfilled. Upon the implementation of an online course and onwards, errors, problems and improvements may be identified. Such issues can be identified based on the feedback of students or the instructors who used the online course in teaching. The objective of the maintenance plan is to facilitate addressing such issues and to find proper ways to resolve them. More details on maintenance and major revisions of the online course are described in Appendix (B).

This section provides a general framework for the online course team and the concerned department to plan for implementing the online course and maintaining it. The team of investigators, who plan to get involved in working on an online course, should prepare, as part of their proposal, a complete implementation and maintenance plan **for a period of three years** from the date of completion of the development phase of the online course (see section 5, item 5.c). The plan should be consistent with the framework which will be presented below.



7.1 Implementation Plan Framework:

1. After the completion of the development phase of the grant, the online course should be offered initially as supplementary material for one semester. The objectives of offering the course as a supplementary material are to test the effectiveness of the online material and to get feedback from students. A further objective is to enable faculty members teaching the course to become more familiar with the online course.
2. Following this supplementary phase, the course shall be offered either completely online or in a blended mode to allow the whole course to be tested over a maximum period of two years. All lessons of the course must be used, at least once, during the blending period set in this plan.
3. For the remaining period, the course may be delivered in any of the three delivery modes (supplementary, blended, or completely online).
4. During the phase described in (2) above, the course shall be offered to a reasonably large number of students representing a reasonable sample of students registered in the course.
5. Each online course development team will nominate two persons from the team to work in the implementation and maintenance phase: a subject matter expert who will be responsible for the implementation and maintenance of the online course; and, a member from the online course developers (multimedia programmer). Description of tasks to be carried out during the implementation and maintenance phase are described below.
6. DAD will provide financial support for the implementation and maintenance of the online course as follows:
 - a. For the first year of the implementation and maintenance phase of the online course, the two nominated persons will be paid SR 5000 each. This period is considered as part of the grant period.
 - b. For the second and third year of the implementation and maintenance phase of the online course, the two nominated persons will be paid SR 1000 each.



The above framework provides some flexibility in designing an implementation plan with respect to delivery methods and number of students. The objectives of the blended or completely online phases, beside those mentioned in section 2, are:

1. To create a real environment to experience benefits of online education. Faculty members will experience online teaching while students will experience a learner-centered education.
2. To test and improve the online course.
3. To save cost, space, time and resources.

7.2 Description of Implementation and Maintenance Tasks:

The two persons who were assigned the responsibility of online course implementation and maintenance will carry out the following tasks each semester during the implementation and maintenance phase:

- Coordinate with the academic department and all faculty members teaching the course to implement the course as planned.
- Organize activities to obtain course evaluation data in coordination with the e-Learning Center. This will generally be done in the form of surveys.
- Interpret the evaluation data collected from the previous semester and identify the issues which need to be revised.
- Make arrangements to update/modify the course to remedy the identified issues.
- At the end of each semester, the nominated person will submit a report of maintenance to the e-Learning Center.

The report will include:

- The list of issues identified from the feedback of students or instructor of the course.
- Details of the steps taken to remedy these problems.



8. PROPOSAL FORMAT

All submitted proposals to this grant program must be written according to the format described below (Please provide 5 copies of the proposal) :

- i. Title Page:** The title page of the proposal should include: the course title; all team members in the project; academic department and date of submittal of the proposal.
- ii. Introduction:** This section should provide a general summary of the course, including items such as: course title, course format, general course content, frequency of offering, # of students per semester ... etc.
- iii. Rationale:** This section should provide the rationale and justifications beyond the idea of offering this specific course online (rather than in the typical classroom format), and the impact on the educational objectives of the specific course to be developed online. A list of expected benefits of offering this course online should be provided. The team should conduct a survey of existing online material in the subject of the course and should provide justification for developing the course online at KFUPM rather than in adopting already existing online material.
- iv. Statement of Work:** This section should provide a detailed description of all major tasks to be carried out by the team during the project lifespan. It is expected that this section will reflect the realization/understanding of the team on all the steps needed for the development of this online course.
- v. Approach:** This section should provide a description of the approach that the team plans to use in addressing some of the key issues in the development of the online course. Answers to each of the following specific questions should be included:
 - How will the online course material be designed in order to make the online course a comprehensive self-paced learning experience?
 - What authoring tools will be used to develop the online course?
 - What assessment and feedback methods will be used in the online course?
 - How will interactivity in the online course be incorporated?



- What will be the available communication means and opportunities for discussion and interaction between the students, and between the students and the teacher?
- vi. **Management Plan:** This section should provide specific and relevant information about all the team members, their background and expertise in relation to online education and the course content, and the contribution of each member to the tasks described in sections (iv) and (v) of the proposal.
- vii. **Implementation and Maintenance Plan:** This section should provide a detailed description for implementing the course and updating it after the course is fully developed. The plan should follow the general guidelines of the implementation and maintenance plan described in section 7 of this guideline. The plan must be reviewed and approved by the department before submission to DAD.
- viii. **Required Resources:** This section should provide a detailed list of all the resources (software, hardware ...etc) that will be used for the development of the online course. This section should also explain how the project team plans to acquire each of the listed resources (Kindly note that the grant does not have provisions for acquiring any new software or hardware for a particular course).
- ix. **Deliverables:** This section should provide a detailed list of all the deliverables that will be submitted to DAD at the end of the grant period. The list should include all the items that will make the course complete and ready to be taught fully online.
- x. **Schedule:** This section should provide a schedule of all the main activities. It should show all the milestones during the development stage of the online course.
- xi. **Budget:** This section should provide a detailed budget for the proposed work. The budget must follow the guidelines provided in Section 10.

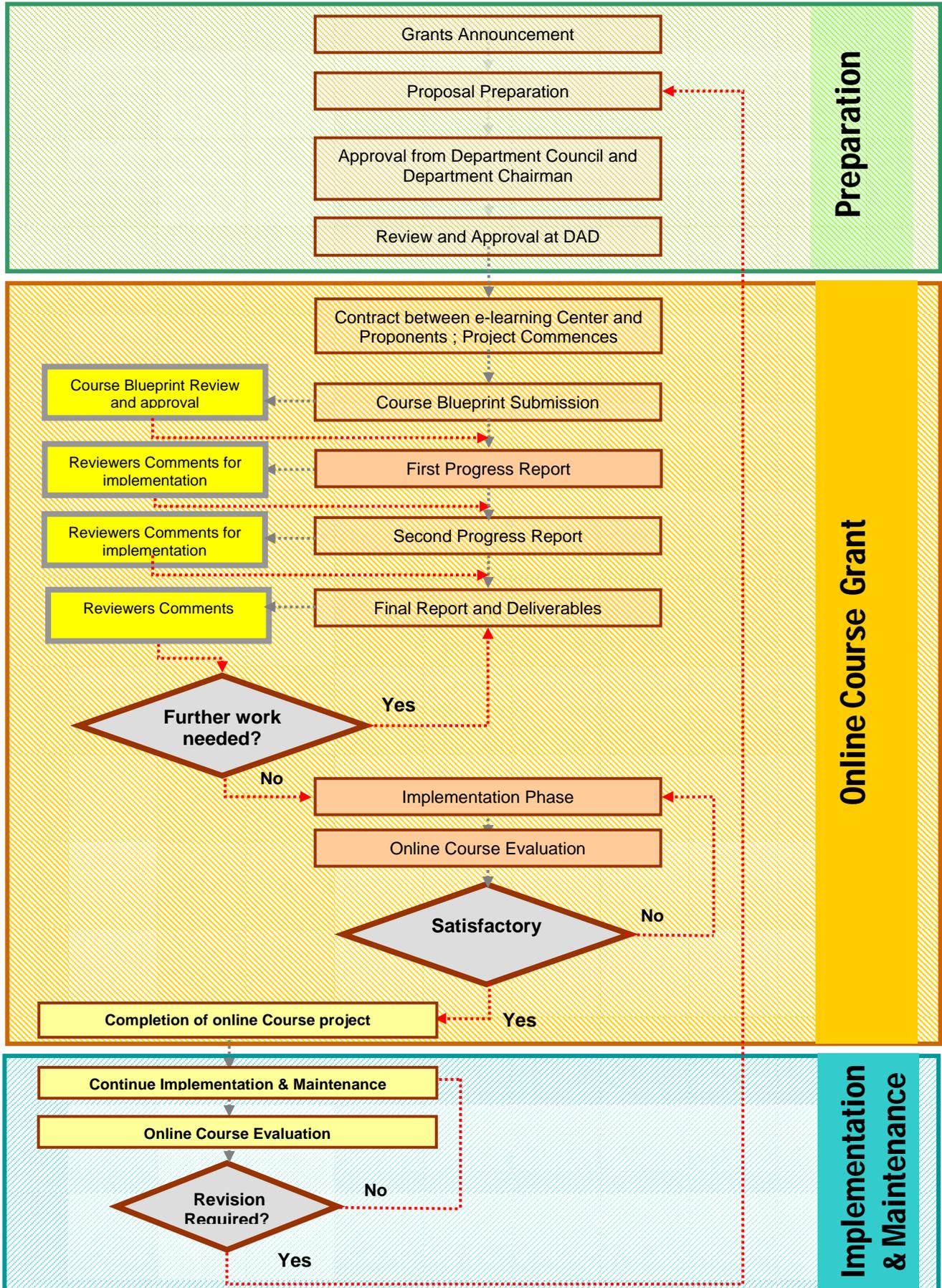


9. GRANT PROCESS

The main phases of the grant are shown in the chart below. Every academic year DAD announces its annual Online Courses Grant. Faculty members who are interested in applying for this grant should prepare their proposal according to the guidelines, and then submit the proposal to the department Chairman. The department Chairman will then send the proposal for internal departmental evaluation and will obtain department support and approval of the proposal. Once approved, the proposal, departmental evaluation, and approval form (see Appendix (C)) should then be sent, through the academic dean, to DAD for evaluation.

DAD will evaluate all the submitted proposals for that academic year in one group. The evaluation will be based on selection criteria set in section 4 of this guideline. DAD review and recommendation procedure is expected to take about 3 months, after which the courses approved for funding will be announced. The team will sign a contract with the e-Learning Center (on behalf of KFUPM), after which the project will commence. During the development phase of the grant, the team will submit the instructional design course blueprint (one month from the starting date of the project), two progress reports, and final progress report along with all deliverables at the end of the development phase. After each submission, reports will be reviewed and comments of the reviewers will be sent to the team for implementation.

Once the online course is successfully developed, the team will be informed about the completion of the development phase of the grant. The two nominated members of the team will then start implementing the online course as planned for one year. After each semester, the subject matter expert in charge of the implementation plan will submit a report on the course implementation and maintenance. At the end of the implementation phase of the grant, the e-Learning Center will evaluate the implementation of the online course and will declare the end of the online course project upon successful completion of the implementation tasks.





10. BUDGET GUIDELINES

Two schemes are available for funding online course development. These are:

10.1 Release Time

Faculty member(s) proposing to develop an online course can request release from teaching (partially or fully) during the proposed project. The concerned department chairman must approve such a request.

10.2 Financial Support

Faculty members proposing to develop an online course in their own time can request financial support for the project duration. The monthly compensation for the project team members and associated supporting staff is as follows:

No.	ITEM	MAXIMUM AMOUNT (SR)
1	Principal investigator	1,200 per month
2	Co-investigator(s)	1,000 per month
3	Lecturer(s) holding Master Degree	800 per month
4	Graduate student(s)/Research assistant(s)	600 per month
7	Secretary	1,000 per grant
5	Stationery	1,000 per grant
6	Maintenance after development (for two members only)	
6.a	First year	5,000 per person
6.b	Second year	1,000 per person
6.c	Third year	1,000 per person

Note: Summer compensation will be provided to all team members if needed.

10.3 Equipment and Software

The grants for online courses do not have provisions for the purchase of any equipment or software for a specific course. Any major equipment or software required for online course development will be purchased through DAD. All software and equipment acquired will be shared tools for all departments under the management of Deanship of Academic Development.



Appendices

APPENDIX (A): SAMPLE COURSE BLUEPRINT

APPENDIX (B): POST-DEVELOPMENT MAINTENANCE

APPENDIX (C): ONLINE COURSE APPROVAL FORM



APPENDIX (A)

Sample Course Blue Print



Course Blue Print of EE 203

Introduction

This is a sample course blueprint of the online course EE 203. After going through the instructional design process, the course content has been clustered into five units:

1. Unit 1: Diodes
2. Unit 2: Bipolar Junction Transistor (BJT)
3. Unit 3: Field Effect Transistor (FET)
4. Unit 4: Digital Circuits
5. Unit 5: Differential Amplifier's

To illustrate how to develop a course blueprint, only Unit 2 has been demonstrated here. Unit 2 consists of three modules and each module consist of many lessons

1. Module 2.1: Introduction to BJT
2. Module 2.2: Analysis of BJT Circuits
3. Module 2.3: Design of BJT Amplifier Circuits



Course Blue Print

Course Title	EE 203 Electronics I
Course Description	<p>This course is a core course in electronic circuits which is taught to electrical, system, and computer engineering students. It introduces the basic electronics circuit devices (diodes and transistors). Moreover, it develops in students the ability to analyze and design electronic circuits. This course consists of five modules. The first one introduces the most fundamental electronic device, the diode. The second unit studies the bipolar junction transistor (BJT). The field-effect transistor (FET) is presented in the third module. The fourth unit introduces MOS and BJT digital circuits. The Last unit covers an important amplifier topology which is the differential amplifier.</p> <p>A core course in electrical, system, and computer engineering departments. 4 credit hours (3 Lecture & 1 Lab)</p> <p>Learners are third year collage students whose major is electrical, system, or computer engineering.</p>
Course Objectives	<p>By the end of this course, students will be able to</p> <ol style="list-style-type: none">O1. Identify the basic electronics components (diode, transistor).O2. Recognize the basic operation of diode and transistor.O3. Analyze an analog electronic circuit.O4. Design and build an analog electronic circuit.O5. Recognize useful applications of circuits.O6. Design basic digital circuits.
Course Materials	<p>Textbook: Microelectronic Circuits, 4th Ed. 1998, by Sedra and Smith, Oxford University Press, Inc.</p> <p>Laboratory: EE 203 Lab Manual</p>
Course Activities	<ul style="list-style-type: none">• Problem-Base approach will be used lightly in this course to enhance students' understanding of important concepts.



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	<ul style="list-style-type: none">• Online discussion will be established for this course. Its main purpose will be to enrich students' knowledge in the applied direction where students will be asked to search the internet for available basic diode and transistor practical applications.• Bank of Practice Quizzes is prepared for this course which will be available to students. These quizzes will be optional. It will help students to enhance their understanding and discover areas of weakness.• Additional reading resources will be provided through the course site.
Course Evaluation Scheme	<ol style="list-style-type: none">1. Eight homework assignments (6%)2. Six in class quizzes (8%)3. Design project will be assigned in week 6 and collected in week 13 (6%)4. Discussion (5%)5. Two Major Exams (Face-to-face) (25%)6. Laboratory (20%)7. Final Exam (Face-to-face) (30%)
Course Learning Objects	<p>General Description:</p> <p>You may find the following sites useful for this course:</p> <ul style="list-style-type: none">• List of useful simulation applets, on Diode, BJT, and MOSFET (University of New York, Bufffalo) http://jas.eng.buffalo.edu/education/mos/mosfet/mosfet.html• More learning objectives may be found in Merlot repository at www.merlot.org



We ek	Les son	Lesson Name	Objectives	Readings	Learning Activities	Learning Objects	Assignments / Assessments
Unit 1: Diodes							
Unit 2: Bipolar Junction Transistor (BJT)							
Module 2.1: Introduction to BJT							
4	1	Physical Structure and Modes of Operation	<ol style="list-style-type: none"> 1. Define Bipolar junction transistors 2. Recognize the physical structure of two types of BJTs 3. Identify modes of operation of BJTs 4. Describe active mode operation of first type of BJTs 	Chapter 4 (4.1- 4.2)	1 Practice Quiz This will address objectives 3-4	Java applets from Internet Obj: 1-2	
4	2	Operation of npn BJT in Active Mode	<ol style="list-style-type: none"> 1. Recognize the concentration profile of minority carriers in the base of npn transistor 2. Apply the collector current relationship 3. Apply the base current relationship 4. Apply relationship between base, collector 	Chapter 4 (4.1- 4.2)	2 Examples & 1 Drill Exercise These will address objectives 2, 3 and 4		A quiz covering objective 2-4.



Week	Lesson	Lesson Name	Objectives	Readings	Learning Activities	Learning Objects	Assignments / Assessments
			and emitter currents				
4	3	Operation of <i>pnp</i> BJT in Active Mode	<ol style="list-style-type: none"> 1. Describe active mode of operation of <i>pnp</i> transistor 2. Recognize BJT circuit symbols and conventions 3. Apply current voltage relationships in the active mode 4. Plot the graphical representation for BJT characteristics 	Chapter 4 (4.1- 4.2)	1 Example & 1 Drill Exercise These will address objectives 2, 3 Discussion based on the application of BJT in Active Mode		Assignment to be submitted online, which includes selected problems covering the objectives of the lessons of this unit.
Module 2.2: Analysis of BJT Circuits							
5	1	DC analysis of BJT	<ul style="list-style-type: none"> • Recognize steps involved for DC analysis • Perform DC analysis of <i>nnp</i> and <i>pnp</i> bipolar transistors 	Chapter 4 (4.2- 4.5)	5 Examples & 3 Exercises Obj: 1,2		
5	2	BJT as an Amplifier	<ul style="list-style-type: none"> • Recognize 'early voltage effect' (dependence of I_c on collector voltage) • Describe the operation of transistor as an amplifier • Define transconductance • Define input resistance 	Chapter 4 (4.2- 4.5)	1 Example & 1 Exercise Obj: 1 2 Exercises Obj: 3-5		



Week	Lesson	Lesson Name	Objectives	Readings	Learning Activities	Learning Objects	Assignments / Assessments
			<ul style="list-style-type: none"> at the base Define input resistance at the emitter Define voltage gain of an amplifier 				
5	3	Small Single Analysis of BJT Amplifier	<ul style="list-style-type: none"> Identify small signal equivalent circuit models (Hybrid-π model and T-model) Recognize the steps involved in small signal analysis Perform small signal analysis of a BJT amplifier circuit 	Chapter 4 (4.2- 4.5)	1 Example & 1 Exercise Obj: 2-3		
Module 2.3: Design of BJT Amplifier Circuits							
6	1	Biasing in BJT Amplifier Circuits	<ul style="list-style-type: none"> Define bias current in BJT Identify the different bias arrangements for BJT discrete circuit Design bias arrangements for BJT discrete circuit design 	Chapter 4 (4.6 - 4.8)	1 Example & 1 Exercise Obj: 1-3		Major Exam 1: covering the diode and BJT. Face-to-Face in class Homework 3 Selected problems on BJT Operation and DC circuit



Week	Lesson	Lesson Name	Objectives	Readings	Learning Activities	Learning Objects	Assignments / Assessments
							analysis.
6	2	Common Emitter and Common Base Amplifiers	<ul style="list-style-type: none"> • Analyze and design following basic single stage BJT amplifier configurations <ul style="list-style-type: none"> ○ Common Emitter Amplifier ○ Common Emitter Amplifier with a resistance in the emitter ○ Common Base Amplifier 	Chapter 4 (4.6 - 4.8)	2 Exercises Obj: 1-3		Discussion: Search the internet and present a real BJT amplifier circuit.
6	3	Common Collector Amplifier	<ul style="list-style-type: none"> • Analyze and design following basic single stage BJT amplifier configurations <ul style="list-style-type: none"> ○ Common Collector Amplifier 	Chapter 4 (4.6 - 4.8)	1 Exercise Obj: 1		A comprehensive quiz covering all lessons of this units
Unit 3: Field Effect Transistor (FET)							
Unit 4: Digital Circuits							
Unit 5: Differential Amplifier's							



APPENDIX (B)

Post-Development Maintenance



POST-DEVELOPMENT MAINTENANCE

In the context of this document, maintenance refers to updating or modifying any part of an online course such that its main characteristics remain the same, where main characteristics include the course learning objectives, outline of the course and the format of the media and the technology used in the course. Maintenance is usually inevitable in any online course. However careful instructional design and adopting practices to ensure quality during the course development may reduce the need for maintenance.

In contrast to maintenance, the case where the main characteristics of an online course require updating or modification will lead to the revision of the online course. The indicators that a course needs revision include:

- The need to revise the subject matter of the course, including course learning objectives and/or course outline due to the advancements in the field of the subject or other similar reasons.
- New formats of media or technologies have become available, which can significantly improve the effectiveness of the course.
- The feedback from the implementation indicates that there are flaws in the design of the course, which significantly interfere with an effective use of the course and require major modification of the course.

The maintenance of the course shall be carried out as described later in this section. The revision of the course, however, will be carried out through a new DAD Online Course Grants proposal. The proposal for the revision can be initiated by either the academic department or the e-Learning Center based on the feedback from implementing the online course. The course revision tasks should be carried out as per DAD Online Course Grants requirements.



APPENDIX (C)

Online Course Grant Approval Form



Online Course Grant Approval Form

I. Project Data

- Online Course Title : _____
- Principal Investigator : _____
- Project Duration : _____
- Total Proposed Budget : _____
- Department : _____ Date: _____

II. Department Recommendation

By recommending this proposal, the department confirms its commitment to offer the online course as proposed by the project team

- Department Council Recommendation: Recommended NOT Recommended
- Justification: _____

- Chairman : _____ Signature: _____ Date: _____

III. Dean of Academic Development Recommendation

- Deanship of Academic Development: Recommended NOT Recommended
- Total Recommended Budget : _____
- Justification: _____

- DAD Dean: _____ Signature: _____ Date: _____

IV. Rector Approval

- Approved Approved as noted below NOT Approved

Rector of the University,

Dr. Khaled S. Al-Sultan _____ Date: _____