

King Fahd University of Petroleum and Minerals  
College of Computer Science & Engineering  
Continuing Education Program

## Guidelines for Offering Short Courses

CCSE Continuing Education Committee\*

### 1 Introduction

Continuing Education Programs at KFUPM are offered by the various Departments through the Deanship of Educational Services. Most of the programs are offered as Short Courses of duration varying from one day to ten days. The purpose of these courses is to provide an opportunity to employees of various organizations to get up-to-date knowledge about the subjects of interest through expertise of the faculty and lab facilities of the University. The short courses are aimed to enhance the professional qualifications of the participants.

The Deanship of Educational Services plays a central role in organizing, offering, and managing the short courses. Like every other college, the College of Computer Science and Engineering has a Continuing Education Committee which consists of faculty members from all three Departments. Each Department in the college has its committee on Continuing Education. This committee acts as a liaison between the Department, Continuing Education Committee of the College, and the Deanship of Educational Services.

Each academic year, the Deanship of Educational Services publishes a bulletin on the short courses selected for offering. The bulletin can be obtained either directly from the office of the Deanship of Educational Services or through the Department office.

The main goals of the Continuing Education Committee include insuring that each proposal meets the University requirements regarding the *organization* of the short course. This includes:

- Review of the short courses offered by the college,
- Review of the proposed personnel and finance,
- Review of the technical aspects whenever possible,
- Promoting cooperation among different departments by recommending participation of specialized faculty.

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\*Based on the work of CCSE Continuing Education Committee over the past five years. The following faculty contributed directly or indirectly in the preparation of this documents. Drs. K. Al-Dhafer, H. Al-Muallam, L. Chedad, M. Shafique, M. Al-Mouhamed, S. Selim, S. Al-Bassam, S. Sait, and J. E. Al-Alwani.

- Reducing redundancies whenever possible.

The short course organizational aspects are monitored by the Dean of the College, the Department Chairman, and the College and Department Continuing Education Committees.

## 2 Proposing a Short Course

A faculty member can participate in a short course as an instructor or as a coordinator. Normally the faculty member who proposes a short course works as a coordinator for the course. Depending upon the expertise and interests of faculty members, the coordinator selects instructors from the faculty or from outside the University.

A new faculty member is encouraged to propose a new short course or to participate as an instructor in existing short courses that are related to his expertise and interests. Faculty members are encouraged to scan the Short Courses Bulletin for the year, and contact the coordinators of the courses in which they can participate as instructors. This should be done as early as possible.

Every faculty member is encouraged to propose a short course related to his expertise. The proposed short course should:

1. Enhance the professional qualification and skills of the participants.
2. Address an issue of interest to the industry and/or business in the Kingdom.
3. Present state-of-the-art in the subject to the participants.
4. Depend mainly on the resources available in KFUPM.

Careful scanning of the current short courses Bulletin can give a good idea about the offered courses and provide a basis for proposing a new short course. Before formally proposing a course, one should have clear idea about the following aspects:

1. **Title** : a good title can be a good incentive for registering in the course.
2. **Objective** : states the usefulness of the presented subject toward improving the professional and general skills of the participant.
3. **Contents** : a list of topics or tasks and their organization.
4. **Resources** : the availability of the required resources (faculty, lab, others) can be a basic factor in the success or failure of a course.
5. **Target Participants** : specifies the required minimum academic level, professional skills, and other technical or professional background. Avoid using too general specification.
6. **Offering Date and Duration** : appropriate numbers of hours/days required to discuss and present the contents. Participants come not only from this area but from all parts of the Kingdom.
7. **Budget** : cost of resources should be covered through the fee paid by the participants. Organizations sending the employees for the short course evaluate their investment and return on investment. A recommended range of the short course fee is between SR 2000 and SR 5000 per attendee.

A sample form for proposing a short course is given in Appendix A.

## 2.1 Short course material

It is highly recommended that short course material be organized as follows:

1. Cover page having: (1) KFUPM and Continuing Education Services logo, (2) college name and department name, (3) short course title, and (4) date of offering and short course location.
2. One page should include the university map and specific guiding information to the building, department, and location of the short course. A copy of this map should be sent to each participant before the offering of the course.
3. One page of general information about KFUPM such as the sections on *History and Philosophy of the University* and *Facilities* which appear in the Undergraduate Bulletin.
4. One page of general information about the college including summary on its vocation, enumeration of its departments, academic programs offered, degrees, and major laboratories.
5. One or two pages on *Departmental Information* including department objectives, specializations, degrees, laboratories, and research.
6. One or two pages on *Summary on the Instructors* including their affiliation, degrees and ranks, specialization, area of interest, industrial experience, participation in short courses, and research interest.
7. Short course schedule for all the days of the course showing: (1) The title of topics of course sessions, (2) The time for each session (starting and ending), (3) The name of the speaker for each session, (4) the location of the session, and (5) the time break.
8. One page for the Table of Content for the short course material including the title of each part and the name of the instructor each part. Copied parts should be started with a page referencing the original document from where the copy is taken, the publication date, and should address the copyright issues. Course notes and copy of transparencies should be preceded with an appropriate cover page. Only high quality copying is accepted.
9. The short course material should be organized as a set of separated parts with appropriate dividers. The divider should hold the title or part number. The first page of each part should include: (1) a title, (2) list of instructor(s), (3) local table of content, and (4) indication of whether the material consists of lecture notes or copied material.
10. Problem solving, case studies, lab sessions, and demonstration need to be clearly identified in the material. We also need to reference such important material in the table of content and create specific dividers for their sections.

## 2.2 Check List for Offering a Short Course

For a successful short course the following points are to be observed:

1. Make sure the topic and the content of the proposed short course should not overlap with those of other short courses offered at KFUPM. If some overlap is unavoidable, try to make it minimal.

2. Make sure the topic should be very needed for local companies. The type of knowledge and training needed is dictated by the current technological trends that are being pursued by the interested companies.
3. Make sure to target the right audience with the right profile.
4. Make sure an adequate faculty teaching team should be chosen. A small team of 3 faculty is highly recommended.
5. Make sure your short course includes useful case studies (if applicable), effective lab sessions with real problems (if applicable), and provide some exposure to computers.
6. Make sure your registration fees are reasonable (SR 3500 to SR 5000). You also need to revise them from time to time based on marketability of the short course and the current financial climate in the Kingdom.
7. Make sure your offering date is appropriate. Avoid dates that are close to start or end of holidays. Make sure the selected date does not overlap with those of other short courses in your department which might create resource conflict (facilities, labs, and equipment).
8. Make sure you have done sufficient publicity for your short course through preparing a well organized and informative brochure. Try to have personal contacts with some companies. Publicize the course through newspapers and other public media if possible.
9. Make sure to meet the following requirements:
  - Coordinators must preferably be senior faculty members
  - A faculty can coordinate or teach in at most 3 short courses
  - A faculty cannot be compensated for more than SR 20,000 per year
  - Coordinator can be compensated for 30 hours
  - Chairman can be compensated for 18 hours
  - Professorial rank faculty receive SR 300/hour and lecturers receive SR 150/hour.
  - The budget is to include 20% to the overhead of KFUPM
  - The budget is to include 10% for KFUPM library (if funds are available).
  - The total compensation for the coordinator, the chairman, and instructors cannot exceed SR 16800.
  - Secretaries may be compensated for up to SR 2000.
  - All remaining budget is allocated to short course equipment.

## **2.3 Proposal Submission and Approval**

A lot of effort is being made by the Department, the College, and the University to maintain high standard continuing education level through the process of submitting and approving each short course proposal. This process is described in the following four steps:

- Step 1: The coordinator submits the short course proposal, in the prescribed format given in Appendix A, to the appropriate departmental committee. The task of the committee is the following: 1) review of all the Department short courses with respect to their organization and format, 2) review of the proposed personnel, finance, and technical aspects (whenever possible), 3) promoting participation among the faculty of the Department and, 4) reducing redundancies whenever possible. The committee may request revision of any aspect of the short course prior to forwarding the proposals to the Department Chairman.
- Step 2: The Department Chairman receives the proposals and the recommendation of the Department committee. His task is to review the committee work to ensure that the proposals meet the general University requirements. One of the Chairman's essential tasks is to review the budget and the faculty compensation as proposed by the coordinator and the Department committee. Other tasks require close coordination with the short course coordinator such as inviting a Guest Lecturer and reservation of auditorium, lab, and audio-visual equipment. The Chairman recommends the Department proposals to the Dean of the College.
- Step 3: The Dean of the College handles the short courses that are proposed by the various Departments. His task is similar to that of the Department chairman but in addition he coordinates with the various Departments in resolving possible conflicts (topics, faculty, and resource utilization) among the college short courses. The Dean forwards the proposals to the College Continuing Education Committee for thorough investigation.
- Step 4: The College Continuing Education Committee has broader criteria for evaluating the proposals. Its task is to:
  - investigate the general organization of each proposal in terms of content, outline, duration, estimated cost of offering, availability of resources (faculty, labs, equipment, and software),
  - attempt to resolve conflicts between proposals of different Departments,
  - review of the evaluation of the last offering (if any) of each short course as well as the load of participating faculty,
  - discuss the relevance to the business and industrial communities' needs and the most suitable offering time.

The committee coordinates revision (if needed) of proposals with the Dean, chairman, and the coordinator. Based on its evaluation, the committee recommends the proposals to the Dean of the College which in turn recommends them to the University committee that is the final authority on approving the proposals.

### 3 Coordinating a Short Course

Coordinating a short course is a major responsibility. Various activities in coordination can be grouped into three groups. Pre-offering, during offering, and post-offering. These groups are described in details in the following sections.

### 3.1 Pre-Offering Activities

#### 1. Material preparation.

All the required material which is planned to be given to the participants should be ready prior to the offering of the course. The material includes books, class notes, slides or transparencies, exercises and solutions. In case the material needs to be reproduced (copied), then the master copy should be ready and reproduction can be delayed until the decision for offering is finally made. Required software/hardware must be arranged and installed early enough before the course offering. Material such as overhead transparencies, OHP pens and slides, should be purchased and made available before the short course is offered.

The short course material can be composed from the following related sources:

- Instructor notes,
- Books and technical reference manuals,
- Articles.

Computer archiving of the short course material is strongly recommended specially for those activities that rely on personal preparation such as the instructor notes and slides. In any case, a good hard copy of the short course material is to be prepared by the coordinator for the participant and for archiving. The hard copy is to be available within the short course file that is kept in the Department office. At any time, this copy represents the most updated version of the material that is distributed to the participants. In addition, the hard copy will serve as the basis for the technical evaluation of the short course. Therefore, the short course topics, organization, schedule, lab session, and any relevant issue should be included within the material. Preparation of the Departmental hard copy is one of the most important responsibilities of the coordinator.

#### 2. Schedule Preparation.

A detailed schedule for the course offering period should be ready at least four weeks prior to the course commencement. The schedule should include information about the following activities.

- (a) time plan for the topics to be discussed and labs to be conducted.
- (b) faculty assignment
- (c) course evaluation
- (d) certificate awarding ceremony
- (e) University tour (optional)
- (f) lunch/dinner (optional)

A sample schedule could be found in Appendix B.

#### 3. Faculty consent.

Participating faculty should be informed about the schedule and conflicts with normal activities, if any, should be resolved well in time. A contingency plan should be ready to handle unexpected situations.

4. Guest Lecturers.

Guest lecturers could be invited to participate in a short course. When submitting the initial proposal of the short course, the Department chairman should indicate the name of the guest lecturer. If the name is not available, it should be explicitly mentioned in the proposal that a guest lecturer will be invited. When the information becomes available, or if there are any changes to the previously supplied information, the list of names should be submitted for approval by the Vice Rector for Academic Affairs.

5. Initial Budget Preparation Process.

A budget estimate for the short course has to be prepared. This should include complete details of the projected income and expenses, using the form shown in Appendix D (budget). Expenses should include the amount of compensation payable to faculty, staff, guest speakers, and the proposed expenses for purchasing equipment and material required for offering the short course.

An advanced fund of SR 2000, could be allocated for use in connection with the short course requirements. This fund should be handled by the coordinator and Department chairman. A detailed description of the expenses and settlement of account should be submitted with the financial report, after the course is offered.

6. Resource Reservation.

This includes

- (a) Auditorium reservation.
- (b) Lab reservation.
- (c) Audio Visual material reservation and scheduling. This includes overhead projectors, pointers, screens, videotape recorders, large screen TV, etc.
- (d) Other relevant items.

7. Criteria for offering a short course.

The following criteria should be followed for offering a short course, as stated in the policies of the continuing education and educational services committee of the University.

- (a) There should be a major participation by KFUPM faculty.
- (b) Course enrollment should be no less than 10 participants.
- (c) Deadline for registration in the short course is ten days before the start date of the course.
- (d) If the required minimum number of participants was not met, or the coordinator cannot balance the budget by adjusting the expenses within the total income, or there are any other major factors that prevent offering the course as proposed and scheduled, then the course should be cancelled and the registrants informed. This decision should be made two weeks prior to the date of course offering. A sample form for short course cancellation could be found in Appendix G.

### **3.2 Some Important Coordinator Responsibilities**

1. Guiding signs for the participants should be posted in a number of suitable places. This can be done in coordination with the Public Relations Office.

2. Registration and material distribution.  
The coordinator must make sure that participants register properly and get the required material.
3. Temporary parking and cafeteria cards.  
Temporary parking cards should be arranged from the security Department and given to the participants. Similarly cards for lunch at faculty cafeteria should be obtained from the public relation office and distributed to the participants. These cards should be taken back from the participants on completion of the course.
4. Tea, Coffee, and Refreshments.  
Proper arrangements should be made with the Food Services Department for providing refreshments in time and in appropriate quantities.
5. Course Evaluation.  
Every short course should be evaluated by its participants. Special evaluation forms are used for this purpose. A sample form is given in Appendix F.

The respective Department office can provide good help for all of the above activities.

### 3.3 Post-Offering Activities

1. Coordinator's Report.  
On the completion of the course, the coordinator is required to write a comprehensive report about the short course. The report should include coordinator's and participants' views, and other valuable observations about the course made by the participants. A sample copy of a typical coordinator's report can be found in Appendix C.
2. Financial Report.  
Faculty payments, coordination payment, and other expense adjustments must all be worked out by the coordinator. A sample copy of a typical budget financial report form can be found in Appendix D.

## 4 Short Course Databases

The continuing education committee is maintaining several databases to assist in offering short courses and continuing education services by the College of Computer Science and Engineering. The databases include the following,

1. List of all participants. This information includes courses attended, business address, employer's address, areas of interest of employer, etc.
2. Mailing list. This includes names and addresses of agencies that would be interested in the continuing education programs offered by the College of Computer Science and Engineering.
3. Faculty list. This includes the areas of interest of all faculty members in the College of Computer Science and Engineering, both in academic research areas, and in short course areas. In addition, Information about external faculty (outside of the college or KFUPM) who are willing and able to participate in the continuing education program in the College of Computer Science and Engineering, will be included.



4. Lists of all short courses previously offered by the Departments in the college. This will include all relevant data about each short course.

## 5 The “Distinguished Short Course Award”

The University approved the implementation of the *Distinguished Short Course Award* in Fall 1998. The aim is to promote high quality continuing education programs at KFUPM that excellently serve the community while meeting the international standards in continuing education. To promote high quality continuing education programs, the University also evaluates all short courses that are offered in a given academic year. A Feedback on the evaluation of the short course(s) is provided to the corresponding coordinators. See Appendix H for the details of the used evaluation of short courses.

The award is given to the best KFUPM short course. The recipient of this award is the short course team that is formed by the coordinator and all instructors. The recipients will receive: (1) a certificate (name of coordinator and instructors), (2) trophies, and (3) an amount of SR 5000 in recognition of their services. The latter amount will be distributed to the team members in proportion to their respective compensation in the short course. The procedure is as follows:

1. Any short course that has not been awarded for the past three years and has been successfully taught during the spring and summer of the previous academic year and fall of the current academic year is eligible for the award.
2. Coordinators submit their short course material in the beginning of each fall semester for consideration for the Short Course Award. The material is submitted to the office of the office of the Dean. The material is composed of the following items:
  - (a) Departmental copy of the short course material (as given to attendees),
  - (b) Final short course report (Coordinator Report) and brochure,
  - (c) A coordinator report on management and marketability of the short course.
3. The Dean of the college appoints an Ad-Hoc committee on Short Course Award for selecting the best three short courses from within the college for the current academic year. The selected short courses must be ranked first, second, and third based on accumulated points which are assigned by using a procedure that is defined below. The Ad-Hoc committee can use any college standards in evaluating these short courses.
4. The Ad-Hoc committee on Short Course Award reports its finding to the Dean together with the corresponding short course materials. The same committee should also present, in a separate document, the criteria and other standards used in the selection.
5. The Dean investigates the decision of the Ad-Hoc committee and reports his final decision together with the short course material to KFUPM Continuing Education Committee.
6. Upon reception of the Deans’ reports on the Short Course Award, the chairman of the KFUPM Continuing Education Committee appoints an Ad-Hoc committee for the selection of a specified number of short courses. Ideally, this committee is to include a faculty member from each college. The Ad-Hoc committee carries out its selection, taking into account the criteria and other standards used in the selection at the college level.

7. The Ad-Hoc committee on Short Course Award reports its finding to the chairman of KFUPM Continuing Education Committee together with a report justifying the decisions and selection of subset of short courses.
8. The short course material used in the evaluation process is returned back to the corresponding departments.

The rating system for the evaluation of short courses is as follows:

Material	Final Report	Management/Marketability	Repetition	Participants	Postponement
35%	30%	10%	5%	20%	-10%

See Appendix I for the details of the rating.

## 6 List of CCSE Proposed/Offered Short Courses

The SE short courses that have been attempted or offered during the past four years are the following:

- Planned and Total Production Maintenance
- Statistical Process Control
- Production and Inventory Control
- Quality Control
- Maintenance Planning and Scheduling
- Industrial Process Re-Engineering
- Probability and Statistics
- Basic Statistics for Industrial Applications
- Occupational Safety and Health Management
- Digital Signal Processing
- Quality Assurance
- Production and Inventory control Systems
- Total Productive Maintenance

The COE short courses that have been attempted or offered during the past four years are the following:

- Automated ASIC Hardware Prototyping Using FPGAs
- Data Acquisition Using Personal Computers
- Designing Interface Cards for ISA Buses

- Micro-Controllers and their Applications
- Electronic Design: Theory and Practice
- Neural Computing and its Applications
- Desk-Top Super Computers
- Personal Computer Networking
- Data Communication and Computer Networks
- Computer Graphics and its Application to Engineering
- Local Area Networks
- Mobile Networks
- Internet Services and Applications
- Computer Networks
- WWW Development
- Personal Computer: Hardware and Troubleshooting

The ICS short courses that have been attempted or offered during the past four years are the following:

- Client/Server Database Systems
- Unix and Systems Programming
- Computer Structured Analysis and Design
- Object-Oriented Application Development in Visual C++
- Database Systems
- Unix System Administration
- Industrial Applications of Expert Systems
- Computer Support for Cooperative Work
- Unix Operating Systems
- TCP/IP: Concepts, Programming, and Administration

## 7 Tentative List of Topics of Interest

Adaptive Control [se], Adaptive Filtering [se], Analysis of Algorithms [se], Applications in Aerospace and Process Industries [se], Applied Statistics [se], Applied Statistics & Probability [se], Arabic Text-To-Speech [se], Artificial Intelligence [ics], Balancing and System Theory [se], CAD & VLSI [ics], Cluster Analysis [se], Coding Theory [ics], Computational Complexity [ics], Computational Geometry [ics], Computer Arabization [ics], Computer Architecture [coe], Computer Control [coe], Computer Graphics [ics], Computer Instrumentation & Control [se], Computer Networks [coe], Computer Networks [ics], Computer Vision [coe], Concurrent Programming [ics], Cryptography [ics], Data Acquisition [coe], Data Communications [coe], Database Systems [ics], Digital Control Systems [se], Digital Design Automation [coe], Digital Signal Processing [coe], Digital System Testing [coe], Dynamic System Modeling & Identification [se], Electronic Design Tools [coe], Engineering Management [se], Estimation & Filtering [se], Expert Systems [ics], Fault Tolerant Computing [coe], Fault Tolerant Computing [ics], Formal Methods of Synthesis [coe], Functional Programming [ics], High Level Synthesis [coe], Human Factors Engineering [se], Human-Computer Interaction [ics], Image Processing [coe], Information Technology Transfer [ics], Interconnection networks [coe], Knowledge-based Systems [ics], Learning Systems [se], Logic Design [coe], Maintenance Engineering [se], Mathematical Programming [se], Micro-Computer Technology [ics], Microprocessors [se], Microprocessors and Interfacing [coe], Model Reduction [se], Natural Language Processing [ics], Neural Networks [coe], Neural Networks [ics], Non-Convex Optimization [se], Non-Traditional Machining [se], Object-oriented Programming [ics], Operating Systems [coe], Operations Research [se], Optical Computing [coe], Optical Computing [ics], Optical Signal Processing [coe], Optimal Control [se], Optimal Control and Optimization [se], Parallel Processing [coe], Parallel & Distributed Processing [ics], Parallel & Distributed Programming [ics], Pattern Recognition [se], Performance Evaluation of Computer Systems [coe], Physical Design [coe], Production System Optimization [se], Production Systems [se], Programming languages [ics], Quality Control Techniques [se], Robotics [coe], Robotics [se], Robust Control [se], Safety [se], Satellite Communications [coe], Scheduling Algorithms [se], Signal Processing & Control [se], Software Complexity Measures [ics], Software Engineering [ics], Speech Coding [se], Speech Processing [se], Statistical Process Control [se], Stochastic Computing [se], Switching Theory [coe], System Identification [se], Theoretical Computer Science [ics], Timing Analysis [coe], Total Quality [se], Transportation Engineering [se], VLSI Design Tools [coe], VLSI Design [coe], Visual Programming [ics].

## References

- [1] “*Approved Policy Recommendations*, KFUPM Continuing Education Committee, January, 1996.
- [2] “*Compilation of Approved Recommendations, of the Continuing Education and Educational Services Committee*”. Memorandum, Office of the Vice Rector for Academic Affairs. 1998.
- [3] “*Coordinator’s Report on Short Courses*”. Memorandum, Office of the Dean of Educational Services.