



Summer Internship Manual for the Bachelor of Computer Engineering

2024



Preface:

As the fields of computer science and information technology continue to evolve rapidly, gaining field experience through summer internships has become a necessity for students to bridge the gap between theoretical and practical knowledge in the labor market. This guide serves as a comprehensive guide for students and faculty within the Department of Computer Science to provide a structured framework for organizing and conducting internships aligning with the program objectives and labor market expectations for the Computer Science program. It also outlines procedures, policies, and best practices to ensure a successful and beneficial internship experience for Computer Science students on the one hand and the organizations and institutions that provide internships on the other.



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1. INTERNSHIP VISION AND MISSION

VISION

Providing an environment that equips computer science students with the necessary practical skills, fosters a culture of continuous learning, and inspires students to reach their full potential.

MISSION

The summer training program offers high-quality, hands-on training to bridge the gap between academic knowledge and practical application.

2. SUMMER INTERNSHIP OBJECTIVES

1. Enabling students to gain valuable practical experience,
2. Testing Students' professional interests.
3. Providing students with in-depth knowledge about professional fields.
4. Improving the practical skills of students.

3. COURSE LEARNING OUTCOMES

1. KNOWLEDGE AND UNDERSTANDING

- 1.1 An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (PLO-K1).
- 1.2 An ability to acquire and apply new knowledge as needed, using appropriate learning strategies (PLO-K2).

2. SKILLS

- 2.1 An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors (PLO-S1).
- 2.2 An ability to communicate effectively with a range of audiences (PLO-S2).
- 2.3 An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

3. VALUES

3.1 An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts (PLO-V1).

3.2 An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives (PLO-V2).

4. SUMMER INTERNSHIP DEVELOPMENT CYCLE

Through the internship, students can acquire knowledge and skills from a planned work experience that is not available in a classroom setting. With permission from the Internship Committee, students can select from the list of available internships or look for additional internships independently. Faculty members can assist students in securing internships through their connections and partners. However, finding a suitable organization for their internship is still the student's responsibility. It is expected of interns to acquire knowledge that will enable them to pursue graduate degrees or professional employment.

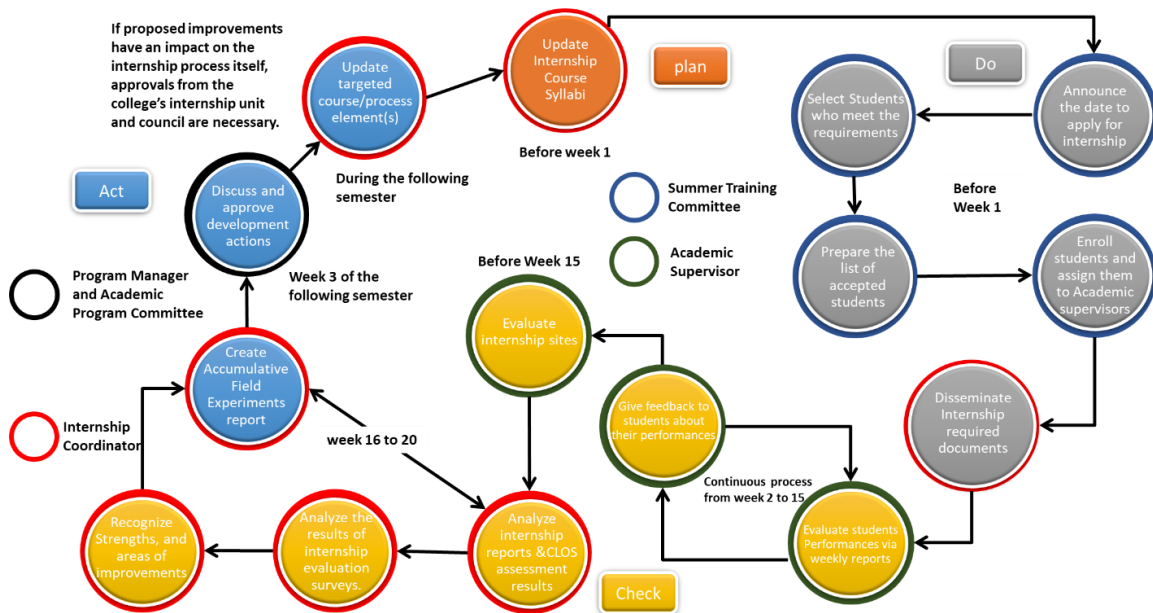


Figure 1: Internship Course Development Cycle

This figure outlines the structured process for managing the COE497 Summer Training (Internship) course, a vital requirement of the Bachelor of Science in Computer Science program. The internship serves as an essential bridge between academic learning and professional application, offering students an opportunity to gain practical experience. The process is designed around the Plan-Do-Check-Act (PDCA) cycle, a proven method for ensuring quality and continuous improvement. Below is a detailed explanation of each phase and its associated steps.

1. Plan Phase

The planning phase focuses on preparing the course structure, documents, and procedures to ensure a smooth internship experience for all stakeholders. The following steps are part of this phase:

- **Update Targeted Course/Process Elements:** This step involves reviewing and revising various components of the internship program, such as objectives, guidelines, and evaluation methods, to ensure alignment with industry trends and academic requirements.
- **Update Internship Course Syllabi:** The syllabi for the COE497 course are regularly updated to reflect any changes in learning outcomes, assessment criteria, or skill expectations, ensuring relevance and consistency.

These preparatory activities set the foundation for a well-structured internship program, ensuring it aligns with the program's educational objectives and Course Learning Outcomes (CLOs).

2. Do Phase

The execution phase emphasizes the effective implementation of the planned internship activities, beginning well before the official internship period starts.

- **Before Week 1:** The pre-internship preparation includes several key steps:

- Announcement of Application Dates: Students are informed about the internship application timeline, ensuring they are aware of the requirements and deadlines.
 - Selection of Eligible Students: Only students who have completed a minimum of **120 credit hours**, as per the program's prerequisites, are eligible for the internship. This ensures that participants possess sufficient foundational knowledge.
 - Preparation of an Accepted Students List: A formal list of students meeting the criteria is prepared to facilitate the enrollment process.
 - Assignment of Academic Supervisors: Each student is assigned a supervisor who provides guidance and monitors progress throughout the internship.
 - Dissemination of Required Documents: Internship-related documents, including guidelines, evaluation forms, and CLO mapping, are distributed to students and their academic supervisors.
- During the Internship:

Students' performance is closely monitored through regular weekly reports, which help track their progress and address any challenges they face. This ensures a structured learning experience during the internship period.

3. Check Phase

The evaluation phase focuses on assessing the effectiveness of the internship process, the quality of student performance, and the alignment with the learning outcomes.

- Evaluate Internship Sites: The suitability and quality of the internship locations are reviewed to ensure they provide students with relevant, real-world learning opportunities.
- Provide Feedback to Students: Supervisors give constructive feedback on students' weekly reports and overall performance, helping them improve their professional skills.

- **Analyze Reports and Assessment Results:** Internship reports and CLO assessments are analyzed to measure students' achievement of learning outcomes. This step is critical for determining whether the program's objectives are being met.
- **Analyze Internship Evaluation Surveys:** Surveys from students, supervisors, and host organizations are reviewed to gather feedback on the overall effectiveness of the internship program.

This phase ensures that the internship is evaluated comprehensively, identifying strengths and areas requiring improvement.

4. Act Phase

The final phase focuses on taking corrective and developmental actions based on the insights gained during the evaluation process.

- **Recognize Strengths and Areas of Improvement:** Successful practices are acknowledged, and areas where the program can be enhanced are identified.
- **Discuss and Approve Development Actions:** Faculty and stakeholders collaborate to propose and approve specific changes aimed at improving the internship program.
- **Update Targeted Course/Process Elements:** Based on feedback and evaluation results, the internship course syllabus and related processes are updated to reflect the necessary improvements.

This phase ensures continuous improvement of the internship program, making it more effective and aligned with both academic and industry requirements.

The figure demonstrates a well-organized process for managing the COE497 Summer training course, emphasizing the integration of planning, execution, evaluation, and improvement. By adhering to this systematic approach, the program ensures that students gain valuable practical experience, meet academic and professional standards, and are well-prepared for future career challenges.

5. KEY STAKEHOLDERS AND THEIR ROLES

The Internship process involves four key stakeholders: the Trainee, the Internship Coordinator, the Academic supervisor, and the Site Supervisor. Next, we will discuss the internship mechanism and the most important responsibilities and tasks of each Stakeholder.

5.1 THE TRAINEE ROLE

The student is the main beneficiary of the training and must understand the training mechanism provided by the COE Department as well as the importance of training. The students must also know their responsibilities toward the internship. The student who is qualified to join the summer training course must do the following in the semester preceding the summer in which he/she prefers training:

- 1) Ensure that the training application requirements are met.
- 2) The student must register his/her data by sending his/her academic record stamped by the Student Affairs Department to the internship coordinator.
- 3) Follow his/her email to ensure that he/she has been accepted for training in the coming summer before starting any procedures.
- 5) Attend Training workshop.
- 6) Contact the training coordinator for any inquiries.
- 7) Communicate personally with the internship site with the following attachments provided:
 - Internship letter, stamped by the department (see the student forms).
 - Internship plan (proposed by the external internship site).
 - C.V. (English and Arabic language)

Upon receiving the approval of the internship site, the student must submit the following documents to the training coordinator:

- Student Trainee Follow-up Training Forms (see student forms).
- Pledge to abide by the rules, regulations and training instructions (see student forms).
- The student sends the internship plan proposed by the external internship site to the internship committee to review it and verify its alignment with the COE internship plan.

The student must follow up with the internship coordinator to identify his/her academic supervisor. If the student wants to drop the internship course, he/she must contact the internship coordinator.

Steps during internship:

- 1) Start the training on the first scheduled internship day.
- 2) Fill out the Contact Form and send it to the internship coordinator.
- 3) Perform the required tasks and comply with the internship plan.
- 4) If the student wants to leave his/her internship site early, he/she must obtain permission from her site supervisor.
- 5) Fill out the progress report (see the progress report template in the student forms) under the supervision of the site supervisor and submit it every two weeks to the academic supervisor via email.
- 6) The student should prepare a report detailing all completed tasks and submit it to the academic supervisor.
- 7) If the student encounters any issues, he/she can contact the academic supervisor via email.

At the end of the internship: After completing the internship period, the trainee must:

- 1) deliver the academic supervisor the following requirements:

- Final Report.
 - Oral presentation.
 - A student Evaluation Survey of the Internship Site.
 - A student Evaluation Survey of the Internship.
 - A steeled envelope or direct email from the site supervisor containing the site supervisor evaluation,
- 2) Prepare a presentation containing the most important achievements learned during the internship period.
 - 3) Discuss the presentation at the time specified by the academic supervisor, knowing that the maximum duration of 10 minutes for presentation and discussion.

5.2 THE INTERNSHIP COORDINATOR ROLE

The training coordinator is a member of the Summer Training Committee in the Computer Science Department, his tasks and responsibilities can be resumed as the following:

- 1) Prepare the introductory meeting (announcement and update the presentation). This meeting is held for the students who want to apply for internships the next semester.
- 2) Receive and verify the students' requests for internship.
- 3) Notify students about the status of their application, whether accepted or rejected.
- 4) Announce the proposed Internship sites, the number of available seats, and the registration requirements.
- 5) Resolve the complaints of trainees and have their recommendations.
- 6) Receive internship requests from the new internship sites and present their internship plans to the internship committee for study.
- 7) Collect from students who meet the above internship requirements the necessary documents.

- 8) Send lists of students enrolled in internships to the internship sites before the start of the training and send notification of any changes that may take place later.
- 9) Send to the academic supervisor at the beginning of each semester the documents of students who are applying for the internship including their names, their internship site name, their site supervisors, and their internship plans.
- 10) Communicate with the student affairs unit to register for the internship course for the accepted students.
- 11) Answer to student questions before, during, and after the internship.
- 12) Collect from the academic supervisor the results of students and the required reports and information to prepare the progress report for the internship committee in the COE department.
- 13) Register the students' results in the academic system at the end of the semester.
- 14) Study the internship needs and find suitable internship sites in cooperation with the internship committees in the other departments of the college to provide internship opportunities for students.
- 15) Archive all the questionnaires and the students' files collected from the academic supervisors.
- 16) Prepare the Progress Field Experience Report.

5.3 THE ACADEMIC SUPERVISOR ROLE

The academic supervisor is a faculty member in the department responsible for overseeing students' internships. The tasks and responsibilities of the academic supervisor are summarized as follows:

- 1) Communicate with the internship coordinator in the COE department to obtain the information of trainees.

- 2) Collect the required forms or letters received from students and the internship sites, at the beginning of the internship.
- 3) Hold periodic meetings with trainees and site supervisors to discuss the observations, proposals, internship plan, and requirements.
- 4) Check the contents of progress reports submitted by students via email.
- 5) Communicate with the student to ensure that the internship process is progressing as agreed upon.
- 6) Respond to the problems facing the students and take the initiative to solve them.
- 7) Inform the internship committee if they have a problem during their supervision.
- 8) Discuss students' oral presentations according to the specified time.
- 9) Calculate the grades of students according to the evaluation criteria
- 10) Collect from the trainees all the required files at the end of training (the final report, presentation, and the site supervisor's evaluation), and send them to the internship coordinator.
- 11) Fill out the Academic supervisor's evaluation forms and send them to the internship committee.
- 12) Cooperate with the site supervisors to create the appropriate atmosphere for the training of students.
- 13) Cancel the internship of students who meet the conditions of cancellation.
- 14) Respond to students and supervisors' inquiries.

5.4 THE SITE SUPERVISOR ROLE

The site supervisor is appointed by the same internship site to supervise the trainee student. The tasks and the responsibilities of the site supervisor are summarized as follows:

- 1) Make sure that the student attends the internship from the first day.

- 2) Monitor the attendance and departure of students by confirming the signing of the student in attendance and departure disclosure.
- 3) Introduce students to the internship site, its objectives, policies and procedures, and provide them with a suitable psychological environment that helps them perform their work correctly.
- 4) Explain the tasks carried out to the trainee in detail.
- 5) Provide the opportunity for students to practice professional work.
- 6) Supervise and follow up the trainees' work and activities and provide them with instructions and guidance required considering the internship plan.
- 7) Ensure the safety of students, reduce risk, and protect them from dangerous work. 9) Participate in evaluating the performance (site supervisor form, see the evaluation forms).
- 8) Communicate with the academic supervisor, and report cases of violation, non-discipline, or absence in the internship site.
- 9) Provide the necessary resources for the training of students such as devices, programs, and instruments.
- 10) Assist students in filling out the progress report and then approving it with signature and stamp.
- 11) At the end of the internship period, send the site supervisor's evaluation of the trainee by email to the academic supervisor or place it in a sealed envelope and hand this envelope over to the trainee who hands it over to the academic supervisor.
- 12) Propose recommendations to support cooperation between the department and the internship site.
- 13) Provide their opinion to develop and improve internships and update course study plans based on the negatives that emerged during the internship experience.

6. EFFECTIVENESS OF TRAINING AND ASSESSMENT

The use of CLO assessment and feedback from surveys can be valuable tools for measuring the quality of the COE497 Summer Training (Field Training) course. CLO assessment defines the learning outcomes that the internship course aims to develop in students, focusing on knowledge, skills, and values. This assessment provides actionable insights into areas where students may require additional support or resources and help adjust the course content to ensure alignment with program objectives. Surveys serve as complementary tools for evaluating the internship program, offering feedback from both students and supervisors to drive data-informed improvements.

6.1 MARKS DISTRIBUTION FOR COE497

The marks distribution of COE497 is given in Table 1.

TABLE 1: MARKS DISTRIBUTION

	Marks
Progress reports	30%
Site Supervisor Evaluation	40%
Academic Supervisor evaluation	10%
Final Report	10%
Oral Presentation	10%
Total	100

7. FORMS AND TEMPLATES

All required summer training forms and templates are officially communicated and made accessible to both supervisors and students. This structured approach ensures that comprehensive documentation is available to support efficient communication, coordination, and internship management.

	
Summer Training Application Form	Training Pledge Form
	
Contact Guide Template	Progress Report Template
	
Student Evaluation Form	Internship Site Evaluation Form

Qassim University
جامعة القصيم
Computer Engineering
كلية الحاسب | College of Computer

