

Department of Technical Education, Karnataka
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING
FIFTH & SIXTH SEMESTER
(Final end examination will be in Sixth Semester)
SUBJECT: PROJECT WORK I & II

Project Work – I
First Phase- V Semester

Contact Hrs/Week: 3 Hrs.

Total : 48 Hrs

GUIDELINES FOR PROJECT FORMULATION

The project work constitutes a major component in most of the professional programmes and it is to be carried out with due care and should be executed with seriousness by the candidates.

Batch Size : Maximum 4 students per batch

TYPE OF PROJECT

As majority of the students are expected to work out a real life project in some industry/research and development laboratories/educational institutions/software companies, it is suggested that the project is to be chosen which should have some direct relevance in day-to-day activities of the candidates in his/her institution. Students are encouraged to work in the areas listed at the end. However, it is not mandatory for a student to work on a real life project. The student can formulate a project problem with the help of Guide.

PROJECT PROPOSAL (SYNOPSIS)

The project proposal should be prepared in consultation with your guide. The project proposal should clearly state the project objectives and the environment of the proposed project to be undertaken. **The project work should compulsorily include the software development.** The project proposal should contain complete details in the following form:

1. Title of the Project.
2. Introduction and Objectives of the Project.
3. Project Category (DBMS/OOPS/Networking/Multimedia/Artificial Intelligence/Expert Systems etc.).
4. Tools / Platform, Hardware and Software Requirement specifications.
5. Analysis (DFDs at least up to second level , ER Diagrams/ Class Diagrams/ Database Design etc. as per the project requirements).
6. A complete structure which includes:
 - Number of modules and their description to provide an estimation of the student's effort on the project.
 - Data Structures as per the project requirements for all the modules.
 - Process logic of each module.
 - Testing process to be used.
 - Reports generation (Mention tentative content of report).

7. Are you doing this project for any Industry/Client? Mention Yes/No. If Yes, Mention the Name and Address of the Industry or Client.
8. Future scope and further enhancement of the project. Also mention limitation of the project.

PROJECT PROPOSAL SUBMISSION AND APPROVAL

After finalizing the topic and the selection of the guide, students should be submit the Project Proposal to the HOD along with the synopsis and bio-data of the guide. Incomplete project proposals in any respect will be immediately rejected.

FORMAT OF LOG SHEETS (To be verified during IA verification and bounded with the project synopsis)

To be filled as per Project Work Schedule given in the *spread sheet*

Sl.No.	Date	Task	Progress of Task	Initials of staff in charge	Evaluation (10 Marks)

IA Marks:

Scheme of Evaluation

1	Log record	05
2	Synopsis	10
3	Presentation	10
	Total	25

PROJECT WORK – II

PHASE – II- VI Semester

Contact Hrs/Week: 3 Hrs

Total : 48 Hrs

PROJECT REPORT FORMULATION

Items to be included in the Project Report

The following items should be included in the Project Report:

1. The project report must contain the following:

- ◆ Introduction
- ◆ Objectives
- ◆ Tools/Environment Used
- ◆ Analysis Document (This should include SRS in proper structure based on Software Engineering concepts, E-R diagrams/Class diagrams/any related diagrams (if the former are not applicable), Data flow diagrams/other similar diagrams (if the former is not applicable), Data dictionary)
- ◆ Design Document (Modularization details, Data integrity & constraints including database design, Procedural design, User interface design)
- ◆ Program code (Complete code (well indented)/Detailed specification instead of code*, Comments & Description. The program code should always be developed in such a way that it includes complete error handling, passing of parameters as required, placement of procedure/function statements as needed.)
- ◆ Testing (Test case designs are to be included separately for Unit testing, Integration testing, System testing; Reports of the outcome of Unit testing, Integration testing, System testing are to be included separately. Also, details of debugging and code improvement are to be included.)
- ◆ Input and Output Screens
- ◆ Implementation of Security for the Software developed (In case, you have set up a User Name and Password for your software, you should ensure the security of User Name and Password during transmission to server)
- ◆ Limitations of the Project
- ◆ Future Application of the Project
- ◆ References and Bibliography

1. Project reports should be typed neatly in Times New Roman letters with font size 14 for titles and 12 for text on both sides of the paper with 1.5 line spacing on a A4 size paper (210 x 297 mm). The margins should be: Left - 1.5", Right - 1", Top and Bottom - 0.75".

2. The total number of reports (**Soft bound**) to be prepared are
 - One copy to the department library
 - One copy to the concerned guide(s)
 - One copy to the candidate.
3. Before taking the final printout, the approval of the concerned guide(s) is mandatory and suggested corrections, if any, must be incorporated.
4. Every copy of the report must contain
 - Inner title page (White)
 - Outer title page with a plastic cover
 - Candidate declaration and Certificate in the format enclosed both from the institution and the organization where the project is carried out.
 - An abstract (synopsis) not exceeding 100 words, indicating salient features of the work.
5. The organization of the report should be as follows

<ol style="list-style-type: none"> 1. Inner title page 2. Abstract or Synopsis 3. Acknowledgments 4. Table of Contents 5. List of table & figures (optional) 	Usually numbered in roman
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Chapters (to be numbered in Arabic) containing Introduction-, which usually specifies the scope of work and its importance and relation to previous work and the present developments, Main body of the report divided appropriately into chapters, sections and subsections.

The chapters, sections and subsections may be numbered in the decimal form for e.g. Chapter 2, sections as 2.1, 2.2 etc., and subsections as 2.2.3, 2.5.1 etc.

The **chapter must be left or right justified (font size 16)**. Followed by the **title of chapter centered (font size 18)**, **section/subsection numbers along with their headings must be left justified with section number and its heading in font size 16 and subsection and its heading in font size 14**. The **body or the text** of the report should have font size 12.

The figures and tables must be numbered chapter wise

The last chapter should contain the summary of the work carried, contributions if any, their utility along with the scope for further work.

Reference and Bibliography: The references should be **numbered serially** in the order of their occurrence in the text and their numbers should be indicated within square brackets for e.g. [3]. The section on references should list them in serial order in the following format.

1. For textbooks –R S Khandpur, Handbook of Biomedical Instrumentation, 2nd Edition, McGraw Hill.

2. For papers – Y.Javadi and I. Sattari, Welding distortion in pipes, Journal of pressure vessels and piping, Vol 85, Aug 2008, pp 337-343

Separator sheets, used if any, between chapters, should be of thin paper

SOFTWARE TOOLS:

Only Open Source Software's Should Be Used to Carry out the Project Code in Project Phase – II

FORMAT OF LOG SHEETS (To be verified during IA verification and bounded with the project synopsis)

To be filled as per Project Work Schedule given in the *spread sheet*

Sl.No.	Date	Task	Progress of Task	Initials of staff in charge	Evaluation (10 Marks)

IA Marks:

Scheme of Evaluation

1	Log record	05
2	Synopsis	10
3	Presentation	10
	Total	25

Laboratory Equipments

A separate lab dedicated to CASP and Project work should be established

CANDIDATE'S DECLARATION

I, ----- the student of Diploma in -----
Department bearing Reg No-----of -----
----- hereby declare that I own full responsibility for the information, results and conclusions
provided in this project work titled “-----
----- “submitted to **Board of Technical Examinations, Government of Karnataka** for
the award of Diploma in _____

To the best of my knowledge, this project work has not been submitted in part or full
elsewhere in any other institution/organization for the award of any certificate/diploma/degree. I
have completely taken care in acknowledging the contribution of others in this academic work. I
further declare that in case of any violation of intellectual property rights and particulars
declared, found at any stage, I, as the candidate will be solely responsible for the same.

Date:

Place:

Signature of candidate

Name: -----

Reg No-----

DEPARTMENT OF TECHNICAL EDUCATION

NAME OF THE INSTITUTION

Address with pin code

Department of

Year _____

CERTIFICATE

Certified that this project report entitled “-----
-----” which is being submitted by Mr./Ms., Reg. No....., a bonafide student ofin partial fulfillment for the award of **Diploma in** _____ **Engineering** during the year is record of students own work carried out under my/our guidance. It is certified that all corrections/suggestions indicated for internal Assessment have been incorporated in the Report and one copy of it being deposited in the polytechnic library.

The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the said diploma.

It is further understood that by this certificate the undersigned do not endorse or approve any statement made, opinion expressed or conclusion drawn there in but approve the project only for the purpose for which it is submitted.

Guide(s)
Name and signature

Head of Department

Principal

Examiners

1.

2

Laboratory Equipments

A separate lab should be established and dedicated to carry out project work for the students.

SN	Item	Qty
1	Computers with latest configuration	20
2	Switch – 32 port	01
3	I/O boxes	20
4	Structured Networking	For all systems
5	Internet Connection	For all 20 systems
6	Software's	As required

ROADMAP FOR PROJECT GUIDES

1. The project work is proposed to be carried out during the V and VI semesters so that learners prepare during the V semester, do some field work based on the preparation during the mid semester vacation and report the analysis and inferences during the VI semester.
2. The learners would reach a level of maturity by the time they reach V semester and so a meaningful project lasting for a year can be executed by them.
3. To execute the project with involvement needs constant guidance and monitoring of the progress of the learners by the guide.
4. This does not mean teacher has to advice learners.
5. Be confident about the ability of the learner and “intellectually provoke” them with challenging questions. These questions should prompt the learners to search information and update themselves (to be carried out during the first two weeks).
6. Do not feed information to learners. Instead crate a ‘cognitive dissonance’ (a challenging question or situation that the learner is not able to find an immediate answer but feels the need to search for information to find a solution).
7. Defer judgement on learners and give them identified sources if required like a journal article, book or a web site.
8. Even if the learners report their inability to solve do NOT give or prescribe a solution.
9. Be patient and give time for the learner to construct his knowledge.
10. Give corrective feedback to the learner by challenging his solutions so that his logic is questioned and it develops further.
11. This leads to the first activity viz., literature survey and conceiving a project.
12. During this phase meet the project team in a group and create a healthy competition among the learners to search different sources and synthesise their findings in the group.

13. Aim for bringing out a workable innovative project conceived within the first eight weeks as given in the schedule attached.
14. During these two phases and the third phase the teacher should assess the strengths and weakness of the members of the group and allocate differential work to team members on the remaining tasks to be carried out during the next thirty weeks.
15. This is to ensure active participation of all the members of the team.
16. By the end of the twelfth week finalise the project and a schedule of further activities for each member indicating the time frame in which his activities are to be executed may be made ready. A soft copy of this schedule may be collected from each learner by the guide to follow up.
17. This schedule prepared by each learner need to be documented for checking further progress of the project.
18. The next few phases of the project may require active guidance of the guide especially regarding the sources of collecting data, if a sample data is to be collected the number of units has to be decided, collating the data/fabricating, tryout/analysis and finally coming out with meaningful conclusions or models or application.
19. Data like models, designs, technical specifications, source code, protocols and original records need be collected from one authentic source as there will not be any variation. The teacher may guide the learners to authentic source.
20. Data having limited variability like product/service quality, processes and standards, procedures need to be collected from a sample as there is a variation. The number of units from whom (source) the data is to be collected is called sample. The sample needs to be representative of the expected variation. The decision on the size of the sample and the number of units need guidance from the teacher. For example, data regarding the quality of a product/service need be collected from 3 to 5 personnel at different levels of a service provider or dealers of a product. The numbers given are suggestive but a guide based on his experience has to make valid suggestions.
21. Data having a wide range of variation like customer satisfaction where the customers are members of the public need a larger number of units to accommodate the diversity. A tool like questionnaire with predetermined questions need to be prepared, tried out on a small sample and finalise the questions. Data may be collected from at least 30 units. This number is suggested to apply statistical analysis for meaningful conclusions. Guides may decide on the sample size depending on the accessibility of data.
22. The intention of the above three points viz., 19, 20 and 21 is to ensure objectivity in data collection i.e., to reduce the subjectivity of the human mind.
23. All the above activities need to be completed before three to four weeks before the end of V semester (refer the spread sheet related to scheduling).
24. The learners may be instructed to collect data objectively with identified sample during the next 4 to six weeks which includes the mid semester holidays. This would enable the learners to visit the field and collect data without the constraint of reporting to institution and attending classes on a regular basis.
25. The collected data need to be organised and entered to spread sheets or similar formats for analysis. Qualitative data may be converted to quantitative using a rating scale or similar data organisation procedures.

26. The result of most analysis on spreadsheet could be obtained in tables or graphs as per the requirement.
27. Activities mentioned in points 24, 25 and 26 may be carried out by learners during 4 to 8 weeks after commencement of VI semester.
28. Interpretation of the analysed tables and graphs to arrive at meaningful inference. The guide at this stage may defer his ideas on interpretation allowing the learners to do this. In case the learners err in the process they may be given corrective feedback.
29. A report of the whole process of doing the project may be written, word processed and submitted in triplicate.
30. Guides may contact industries and try to solve their problems so that the learners get a field experience and they get ready for the industry.
31. Innovations and innovative practices may be encouraged among the learners to be pursued as a project. Developing prototypes, (in simulation or real) trying out feasibility of new ideas, changing existing systems by adding modules, combining, assembling new modules and developing new systems may be given higher priority over routine bookish projects.
32. The schedule of events proposed is for an investigative project as a model. Guides may alter the prescribed schedule to suit the kind of innovative projects sited in point No.31 above.
33. Industry personnel may be involved in conceiving, executing and evaluating projects. This gives credibility to the institute and acceptance of learners for absorption into the company.

GUIDELINES TO LEARNERS TO CARRY OUT A TWO SEMESTER PROJECT

1. Carry out the project work through the V and VI semesters. Preparation must be done during the V semester and based on this, field work should be done during the mid semester vacation and reporting of analysis and inferences should be done in the VI semester.
2. You have the ability and the level of maturity needed to conceive an innovative and meaningful project accomplishing which gives you recognition by the industry and empowers you with the power of knowledge.
3. Understand your strength and weakness and make an effort to find the strength and weakness of other peers in the team.
4. Complement each other's strength rather than compete with peers within the team. This will enable you to complete a comprehensive and innovative project relevant to the industrial needs rather than doing a routine copy of what others have done.
5. Seek guidance from the teacher and update him/her about the progress.
6. Be confident about your ability and that of other members of your group. Take extra efforts to collect information, share with your peers and synthesise your knowledge.
7. Question everything including the ideas of your teacher. Accept the ideas and instructions which are internally consistent (logical).

8. Involve actively in group activities and contribute towards the tasks.
9. Do not depend too much on the teacher as a source of information, search on your own and build your knowledge structure. Search for authentic sources like journal articles, books and authentic sites rather than blogs and tweets.
10. Though brief, record your thoughts and activities including searches immediately.
11. Prepare a schedule for your work on a spread sheet and encourage your peers to do the same.
12. Show your schedule and that of others to the teacher and get his feedback.
13. Keep reviewing the schedule every fortnight and take corrective steps if needed. For doing this keep the general guideline schedule given in the curriculum as a backdrop.
14. Tools used for data collection like instruments, testing machines, questions to be asked and software may be tried out and standardised by the twelfth week of the project. Seek the teacher's help who is experienced in doing this.
15. Collect data dispassionately or objectively (without applying your personal prejudice). Complete this task before the VI semester begins.
16. While entering data into the spread sheet ask your peer member to verify. This will ensure accuracy of data entry.
17. Use appropriate mathematics/statistics for calculations. Seek help from external sources (other than your teacher) if required.
18. The results of your analysis need to be graphically represented and documented. You may also add photographs and video clips to increase the validity.
19. This task needs to be completed within 8 weeks after commencement of VI semester.
20. Interpret the data (after analysis) and arrive at meaningful inferences on your own in discussion with your peers. Get it ratified by your teacher. Suggestions from the teacher may be discussed among your peers and incorporated if they are internally consistent.
21. The project report may be word processed (videos, photographs attached in soft copy) and submitted in triplicate two weeks before the end of VI semester.
22. Involve passionately in the team work, make constructive contributions and come out with an industry friendly project which will equip you in your professional development.