

**CS-76**

**BACHELOR OF COMPUTER APPLICATIONS  
(BCA)**

**BCA 6<sup>th</sup> Semester  
CS-76  
PROJECT GUIDELINES**



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES  
INDIRA GANDHI NATIONAL OPEN UNIVERSITY  
MAIDAN GARHI, NEW DELHI – 110 068**

## CONTENTS

| <i>Sl.No.</i> | <i>Topic</i>   | <i>Page No.</i> |
|---------------|--|-----------------|
|               | Message from the Project Coordinator   | 3               |
| I             | Calendar for the Project   | 4               |
| II            | Proforma for BCA (CS-76) Project Proposal<br>(Project's Title and Guide's Details) | 5               |
| III           | Guidelines for Project Formulation   | 7               |
| IV            | Project Proposal Submission and Approval   | 8               |
| V             | Project Report Formulation   | 9               |
| VI            | Important points while preparing the Project Report                                | 11              |
| VII           | List of Broad Areas of Application and Related Tools                               | 12              |
| VIII          | Remuneration Form for the BCA (CS-76) Project Guide                                | 13              |
| IX            | Certificate of Originality   | 15              |
| X             | Project Trainee Letter   | 16              |

## **MESSAGE FROM THE PROJECT CO-ORDINATOR**

The Bachelor of Computer Applications (BCA) programme prepares the students to take up positions as Programmers, Systems Analysts, Systems Designers in the field related to computer science and information technology, and ITES or students may go for higher studies in this area. We had therefore imparted the comprehensive knowledge covering the skills and core areas of computer science courses with equal emphasis on the theory and practice in BCA programme.

The BCA students are encouraged to involve themselves completely on the project work in their final semester. It is advised to students to develop their project for solving problems of software industry or any research organization. Doing this will give more exposure to handle real life problems of project development.

The courses studied by you during your BCA programme provide you the basic background to work on diverse application domains. The theoretical background of various courses provides you the necessary foundation, principles, and practices to develop effective ways to solve computing problems. The hands on experience gained from the practical courses provide you the knowledge to work with various operating systems, programming languages, and software tools.

This project work is kept in BCA program to give you opportunity to develop quality software solution. During the development of the project you should involve in all the stages of the software development life cycle (SDLC) like requirements analysis, systems design, software development/coding, testing and documentation, with an overall emphasis on the development of reliable software systems. The primary emphasis of the project work is to understand and gain the knowledge of the principles of software engineering practices, and develops good understanding of SDLC.

Students should take this project work very seriously. CS-76 project should be taken as an opportunity to develop software, which gives exposure to SDLC. Topics selected, should be complex and large enough to justify as a BCA project. The project should be genuine and original in nature and should not be copied from anywhere else. If found copied, the project report will be forwarded to the Exam Discipline Committee of the University as an Unfair means case for necessary action. Students should strictly follow and adhere to the CS-76 project guidelines.

I wish you all the success.

**M.P. Mishra**

Email: [bca@ignou.ac.in](mailto:bca@ignou.ac.in)

## **I. CALENDAR FOR THE PROJECT**

| <i>Sl.No.</i> | <i>Topic</i>   | <i>Date</i>   |
|---------------|--|---|
| 1.            | Submission of a Guide's bio-data and project proposal at the following address:<br><br>The Regional Director of your Regional Centre | <b>Twice a year as shown below:</b><br><b>1<sup>st</sup> April to 30<sup>th</sup> June</b><br><b>or</b><br><b>1<sup>st</sup> October to 31<sup>st</sup> December</b>  |
| 2.            | Approval of Project  | <b>30 days</b> after the project proposal is received.  |
| 3.            | Submission of the Project Report ( <b>one copy</b> ) in <b>bound form to:</b><br><br>The Regional Director of your Regional Centre   | <b>Twice a year as shown below:</b><br><br><b>1<sup>st</sup> July to 30<sup>th</sup> September (For Project Proposal that have been approved during the 1<sup>st</sup> April to 30<sup>th</sup> June slot)</b><br><b>or</b><br><br><b>1<sup>st</sup> January to 31<sup>st</sup> March (For Project Proposal that have been approved during 1<sup>st</sup> October to 31<sup>st</sup> December slot)</b> |
| 4.            | Viva-Voce to be conducted  | <b>In July</b> (For project reports submitted during 1 <sup>st</sup> January - 31 <sup>st</sup> March slot)<br><br><b>In January</b> (For project reports submitted during 1 <sup>st</sup> July – 30 <sup>th</sup> September slot)  |



SCHOOL OF COMPUTER AND INFORMATION SCIENCES  
IGNOU, MAIDAN GARHI, NEW DELHI – 110 068

**PROFORMA OF BCA PROJECT PROPOSAL (CS-76)**  
**(Project's Title and Guide's Details)**

Enrolment No.: ..... Regional Centre Code: ..... Study Centre:.....

**1. Name and Address of the student:**

.....  
.....  
.....

E-mail: ..... Telephone No.: .....

**2. Title of the Project:**.....

**3. Name and Address of the Guide:** .....

.....

**4. Qualification of the Guide:** .....

(Attach bio-data also)

Ph.D.

M.Tech.

B.Tech.

MCA

Any other

(Note : i. All the above mentioned Degrees must have been awarded in Computer Science/IT only  
ii. A Guide should not guide more than 8 students of BCA at any point of time )

**5. Industrial / Teaching experience of the Guide (in Years):**.....

**6. Software Used For This Project :** .....

**Note :**

1. Use of Visual Basic and MS-Access as Front End and Back End respectively is strictly forbidden. But, you are permitted to use Visual Basic with other Software. Also, you can use MS-Access with other software.
2. Use of C or C++ Programming Language for Project Related to Database Management is strictly forbidden.

Signature of the Student

Signature of the Guide

Date: .....

Date: .....

**Important:** 1. Attach this Proforma along with Guide's Biodata and Project Synopsis in the Project Report.  
2. Not more than one student is permitted to work on a project.

**For Office Use Only**

Approved

Not approved

.....  
Signature, Designation, Stamp of  
the Project Proposal Evaluator

Date: .....

**Suggestions for reformulating the Project:**

Ensure that you include the following while submitting the Project Proposal:

- 1. Proforma for Approval of Project Proposal duly filled and signed by both the student and the Project Guide with date.**
- 2. Bio-data of the project guide with her/his signature and date.**
- 3. Synopsis of the project proposal ( 15-20 pages).**
- 4. A self-addressed envelope with duly affixed postage stamps (to send it by ordinary post only) on it.**

*A photocopy of the complete Project Proposal (along with Project Proforma, Project Synopsis, Biodata of the guide) submitted to your Regional Centre, should be retained by the student for future reference.*



### III. 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.

#### 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 (RDBMS/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.

#### **IV. PROJECT PROPOSAL SUBMISSION AND APPROVAL**

**After finalising the topic and the selection of the guide, students should send the Project Proposal Proforma given on page no. 5 along with the synopsis and bio-data of the guide to The Regional Director of the Regional Centre concerned. Incomplete project proposals in any respect will be immediately rejected.**

#### **COMMUNICATION OF APPROVAL**

Communication regarding the Approval / Non-approval of the project will be sent to you **within four weeks** after the receipt of the project proposal by the Regional Centre concerned. In case of non receipt of status of approval of synopsis in specified time, you are advised to contact your Regional Centre for the status.

#### **RESUBMISSION OF THE PROJECT PROPOSAL IN CASE OF NON-APPROVAL**

In case of non-approval, the suggestions for reformulating the project will be communicated to you. The revised project synopsis along with a new proforma, should be re-submitted along with a copy of the earlier synopsis and non-approval project proposal proforma in the **next slot**. For example, if the student submitted the synopsis during the 1<sup>st</sup> April to 30<sup>th</sup> June slot and is not approved due to some reasons, s/he is eligible to resubmit the revised project synopsis only during the next slot i.e., 1<sup>st</sup> October to 31<sup>st</sup> December. These guidelines are applicable for earlier batch students also whose project work is pending.

#### **ELIGIBILITY OF PROJECT GUIDE**

1. A person having Ph.D./M.Tech. in Computer Science.  
**OR**
2. A person having B.E/B.Tech (Computer Science), MCA, M.Sc (Computer Science) with minimum 2 years experience in Industry / Teaching.

## **V. 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
- ◆ Bibliography

\*Students who have done their project for any organization are permitted to attach detailed algorithm/specification instead of code, in case, the organization doesn't permit them to attach the code. Student needs to attach letter in the project report from the Project Manager of the project in the organization that they are not permitting student to attach the code. In the absence of such letter, the student needs to attach the code compulsorily.

The project report should be hard bound; should consist of a **Contents** page; all pages of report should be numbered; content should be well organized in a meaningful manner; printouts of text & screen layouts should be original and should not be xeroxed)

2. **Original copy of the Approved Project Proposal Proforma, Synopsis and Guide's Bio-data.**
3. **Certificate of Originality (Format given on page no. 15).**

4. The Project Report may be about 50 to 80 double spaced A-4 size typed pages (excluding program code). However, 10% variation on either side is permissible.

## SUBMISSION OF PROJECT REPORT

Only one copy of the project report is to be submitted to the following address by registered insured post: **Regional Director, Concerned Regional Centre** by the date mentioned in the Calendar for the project (refer to page-4).

## TYPE OF PROJECT

The majority of the students are expected to work on a real-life project preferably in some industry/ Research and Development Laboratories / Educational Institution / Software Company. Students are encouraged to work in the areas listed at the end (Refer page no.12). 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 her/his Guide and submit the project proposal of the same. If approved, the student can commence working on it and complete it.

## PROJECT EVALUATION

The **Project Report** is evaluated for 150 marks and the **Viva-Voce** is for 50 marks. To be declared successful, the student should secure at least 40% marks separately in both project report evaluation (i.e., 60/150) and viva-voce (i.e., 20/50). Students will be duly intimated about the schedule of viva-voce by a letter from the respective Regional Centre. An unsuccessful student can either submit the same project after following comments on the assessment sheet or s/he can do a different project. Always, ensure that the CS-76 project guidelines are followed.

**Unfair cases of copied versions of the project synopsis and project reports will be sent to Unfair Means Committee of IGNOU for action.**

## RESUBMISSION OF THE BCA PROJECT IN CASE OF FAILED STUDENTS

If the student is unsuccessful in the project, s/he should ‘re-do’ the whole cycle, right from the submission of the project synopsis. Students are advised to select a new topic for the project and should prepare and submit the project synopsis to the Regional Centre concerned as per the project guidelines. There are no separate slots for the submission of the project synopsis / project reports for the failed students. Respective submissions of the project synopsis and the project reports should be done strictly as per the “calendar for the BCA project” given in the project guidelines. Along with the resubmission of the project report, the student is required to remit **Rs. 850/-** if enrolled in CS-76 course otherwise **Rs. 1275** (in case of CS-11) as pro-rata fee. The pro-rata fee may change as per University rules. The fee should be remitted to the Regional Centre at the time of resubmission of the project report by the way of Demand Draft favouring IGNOU and payable at the city where your Regional Centre is located.

## ENQUIRIES

Enquiries regarding the Project Report and Viva-Voce should be addressed to the **Regional Director, Concerned Regional Centre**. In all correspondence, please quote your Enrolment No.

## **VI. IMPORTANT POINTS WHILE PREPARING THE PROJECT REPORT**

1. The Project Report should be submitted in A-4 size typed in double space. The Project Report should be hard bound.
2. Ensure that it contains the following:
  - Project Proposal Proforma. All the items should be filled. The signatures of both student and Guide should be present.
  - Project Synopsis. Both Guide and student should sign on the Project Synopsis.
  - Guide's Bio data. The Biodata should consist of signature of the Guide.
  - Certificate of Originality (Format given on Page no.15)
  - All signatures should be accompanied by the date of signature.
- It should include all items mentioned in Section IV.
3. **If any project report is received in the absence of the items listed above, it will be rejected and returned to students for compliance. Also, violation of Project Guidelines may lead to rejection of the Project .**
4. **Only One hard bound original copy of the project report is to be submitted to 'The Regional Director, Concerned Regional Centre' by registered insured post. One copy of the same Project Report is to be retained with the student and the student is supposed to carry his copy while appearing for viva voce. Spiral binding of Project Report is not permitted.**
5. Xerox copy of the project report is not acceptable.
6. Not more than one student is permitted to work on a Project.
7. If the title of the Project differs from the title mentioned in the Project Proposal, the Project Report will be rejected and will be returned back to the student.
8. Kindly mention on the top of the envelope "**BCA PROJECT REPORT (CS-76)**". This will facilitate sorting out project reports at the Regional Centre.
9. The envelope containing the remuneration form for the Project Guide duly signed by the Guide and the student, should be sent to "Regional Director, Concerned Regional Centre."
10. In case, students require any letter from the University for doing a project in any organization, they may request the Regional Director of the concerned Regional centre for the issuance of the same in the format indicated under **Project Trainee** in this document. (Refer to Page number : 16).

## VII. LIST OF BROAD AREAS OF APPLICATION AND RELATED TOOLS

|   |  |
|---|--|
| <b>FRONT END / GUI Tools</b>                      | : Visual Basic, Power Builder, X-Windows (X/lib, X/motif, X/Intrinsic), Oracle Developer 2000, VC++, Jbuilder  |
| <b>RDBMS/BACK END</b>                             | : Oracle, Ingres, Sybase, Progress, SQL Plus, Versant, MY SQL, SQL Server, DB2   |
| <b>LANGUAGES</b>                                  | : C, C++, Java, VC++, C#   |
| <b>SCRIPTING LANGUAGES</b>                        | : PERL, SHELL Scripts(Unix), TcL/TK  |
| <b>RDBMS/BACK END</b>                             | : Oracle, Ingres, Sybase, Progress, SQL Plus, Versant, MY SQL, SQL Server, DB2   |
| <b>MIDDLE WARE (COMPONENT TECHNOLOGIES</b>        | : COM/DCOM, Active-X, EJB, Rational Rose, MSMQ, BEA, Message Q, MTS, CICS  |
| <b>UNIX INTERNALS</b>                             | : Device Drivers, Pipes, RPC, Threads, Sockets   |
| <b>ARCHITECTURAL CONCEPTS</b>                     | : CORBA, TUXEDO  |
| <b>INTERNET TECHNOLOGIES</b>                      | : DHTML, Java script, VB Script, Perl & CGI script, HTML, Java, Active X, RMI, CORBA, SWING, JSP, ASP, XML, EJB, Java Beans, Java Servlets, Visual Age for JAVA, UML, VRML, WML, iPlanet, ATG, BigTalk, CSS, XSL, Oracle ASP server, VB.Net, AWT, J2EE, LDAP, ColdFusion, PHP etc.               |
| <b>NETWORKING TECHNOLOGIES</b>                    | : ATM, Frame Relay, TCP/IP, SNMP, GSM, VoIP, PPP, IP-PSTN, SONET/SDH   |
| <b>WIRELESS TECHNOLOGIES</b>                      | : Blue Tooth, 3G, ISDN, EDGE   |
| <b>REALTIME OPERATING SYSTEM/ EMBEDDED SKILLS</b> | : QNX, LINUX, OSEK, DSP, VRTX, RTXC, Nucleus   |
| <b>OPERATING SYSTEMS</b>                          | : WINDOWS 95/98/2000/ME, WINDOWS NT, UNIX, LINUX, IRIX, SUN SOLARIS, HP/UX, PSOS, VxWorks, AS400, AIX, WINDOWS XP, DOS   |
| <b>APPLICATIONS</b>                               | : Financial/ Manufacturing/ Multimedia/ Computer Graphics/ Instructional Design/ Database Management System/ Internet/ Intranet/ Computer Networking-Communication Software/E-Commerce/ ERP / MRP/ TCP/IP Internals/ Routing protocols/ Socket Programming/ Implementation of Switches & Routers |

*Note: Projects should not be developed using the packages like Dbase, Foxpro, Visual Foxpro . Also, projects should not be developed using the combination of Visual Basic as the front end and MS-Access as the back end.*

## VIII. REMUNERATION FORM FOR THE BCA (CS-76) PROJECT GUIDE



INDIRA GANDHI NATIONAL OPEN UNIVERSITY  
MAIDAN GARHI, NEW DELHI – 110068

### REMUNERATION BILL FOR THE BCA PROJECT GUIDE

1. Course Code : **BCA (CS-76)**
2. Name of the Guide : \_\_\_\_\_
3. Residential Address :  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Designation : \_\_\_\_\_
5. Office address : \_\_\_\_\_

This is to certify that I have Guided the following student(s) for their project work:

| S.No | Enrolment Number of the student | PR No. (to be filled by the Regional Centre) | Name of the student | Title of the Project | Amount Claimed |
|------|---------------------------------|--|---------------------|----------------------|----------------|
|      |                                 |  |                     |                      |                |
|      |                                 |  |                     |                      |                |
|      |                                 |  |                     |                      |                |
|      |                                 |  |                     |                      |                |
|      |                                 |  |                     |                      |                |
|      |                                 |  |                     |                      |                |
|      |                                 |  |                     |                      |                |

**Signature of the Guide**

Date : .....

**NOTE:** Project guide cannot guide more than eight students in any given point of time. This form duly signed by the guide placed in a separate envelope, should be submitted along with the project report. Remuneration Bill not accompanied with the project report will not be considered for payment. For CS-76 (4 Credits) course, the remuneration is Rs.100/- for Project Guide for guiding one project.

**FOR USE IN THE EXAMINATION BRANCH**

Registrar (SED)

Verified by Dealing Asstt.

**FOR USE IN FINANCE BRANCH**

Passed for payment of Rs. : \_\_\_\_\_

Debit Head: Examination \_\_\_\_\_

: Contingent \_\_\_\_\_

: T.A. \_\_\_\_\_

Dated : \_\_\_\_\_ Section Officer / A.R. (Accounts)

Dealing Asstt.

Paid by Cheque No. \_\_\_\_\_ Dated \_\_\_\_\_

Assistant Registrar

## **IX CERTIFICATE OF ORIGINALITY**

This is to certify that the project report entitled \_\_\_\_\_

Submitted to **Indira Gandhi National Open University** in partial fulfilment of the requirement for the award of the degree of **BACHELOR OF COMPUTER APPLICATIONS ( BCA )**, is an original work carried out by Mr./ Ms.\_\_\_\_\_

Enrolment No.: \_\_\_\_\_ under the guidance of Mr./ Ms.\_\_\_\_\_

The matter embodied in this project is a genuine work done by the student and has not been submitted whether to this University or to any other University / Institute for the fulfilment of the requirement of any course of study.

Signature of the Student

Name and Address  
of the student :

Enrolment No.:

Signature of the Guide

Name, Designation and  
Address of the Guide



School of Computer and Information Sciences  
**INDIRA GANDHI NATIONAL OPEN UNIVERSITY**  
Maidan Garhi, NEW DELHI – 110068

**X. PROJECT TRAINEE LETTER**

**Date:**

**Subject: Project Trainee**

Sir,

This is to certify that Mr / Ms \_\_\_\_\_ whose Enrolment No.\_\_\_\_\_ is a student of BCA Programme of Indira Gandhi National Open University and has to do a project in his/her final year starting from January / July session. The project is compulsory for BCA programme. S/he has to do a project for 3-6 months in Industry/Research Laboratories under the supervision of a guide preferably from the same organization. During his course, the student has gone through / will go through several theoretical papers such as Data Structures, Database Management System, Programming Languages ( C, C++, and Java), TCP/IP Programming, Intranet Administration, Computer Networks, S/W Engineering etc. The student also attended / will also attend practical sessions in all courses in which practical sessions were prescribed for various subjects.

Looking forward for your positive response.

**Signature& Name of Project Coordinator  
with Date and Stamp**

**Note: This letter may also be signed by Regional Director / Asst. Regional Director of Regional Centre concerned.**