

**MCA6020 – Project Guidelines
Master of Computer Applications (MCA)
(Revised Fall 2012) Program**

Sixth Semester

**Directorate of Distance Education
SIKKIM MANIPAL UNIVERSITY (SMU)**

Contents

1. Introduction
 2. Project Work - Roles and Responsibilities
 - 2.1 Project guide
 - 2.2 Project Steering Committee
 3. Project work - Phases
 - 3.1 Phase 1: Project Synopsis and Guide Approval
 - 3.2 Phase – 2: Project Design and Development
 4. Broad areas for Project Work
 5. Guidelines for Project Documentation
 6. EduNxt Access Procedure
 - 6.1 For Project Synopsis Submission
 7. Evaluation.
- Annexure
- I. Project Synopsis and Guide Acceptance Form
 - II. Project Guide Registration Form

1. Introduction

The course titled "Project work" bearing the subject code MCA6020 has 16 credits weight and the duration of project work is allotted to be 480 Hours.

The basic aim of Master of Computer Applications (MCA) program is to prepare the students as Programmers, Systems Analysts, Systems Designers etc. in the field related to computer science and information technology. Students can also aspire to go for higher studies in this area.

The project work is part of the MCA program will give an opportunity for the students a hands on experience in developing quality software applications. During the development of the project a student should involve himself 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.

The MCA 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.

Students should take this project work very seriously. Topics selected, should be appropriate enough to justify as a MCA project. The project should be genuine and original in nature and should not be copied from anywhere else.

2. Project Work – Roles and Responsibilities

2.1 Project Guide

The role of a project guide is highly significant in getting a quality output from the students. As a project guide your expertise in the subject domain, counselling, monitoring and evaluating is sought.

Qualification of a Guide:

- A Post Graduate in IT with specialization in appropriate area.
- The guide should have a minimum of 5 years of Industry/ Teaching experience.
- At a given session a guide can supervise a maximum of 20 projects.

Role of a Guide:

- As a guide you are expected to offer suggestions to fine tune the problem identified and in synopsis preparation. The problem identified should be sufficient enough for a study at MCA level.
- The guide has to monitor and review the project work periodically with a minimum two reviews during the course of the project. Review report needs to be prepared.

- The guide has to go through the draft project report and offer suggestions wherever necessary and to confirm that the project report is submitted as per the prescribed format.
- The guide has to send the Internal Assessment (IA) mark for the students whom he/she was guiding for the session, to the LC to which the student is attached. This is to be sent along with the signed final Project Report for submission.

Project Guideship Approval from the University

(Qualified persons desirous of guiding projects)

- Directly apply to the SMU-DE, in the prescribed format available on the university web site / EduNxt Portal (see Annexure II)
- Guide CV along with photocopy of the credentials is a must for approval as a Project Guide with the University.
- A guide can fill in the prescribed format when approached by a prospective project student who is expected to forward the same to the University
- Please note that you will become an eligible guide only on approval by the Project Steering Committee of the University

Meeting with the Project Guide

- The Student is required to meet and discuss with the guide periodically on mutually agreed dates.
- The Student is also advised to maintain e-mail contact with the guide
- Any Conflict of interest during the course of the project is to be immediately brought to the notice of the Project Steering Committee of the University

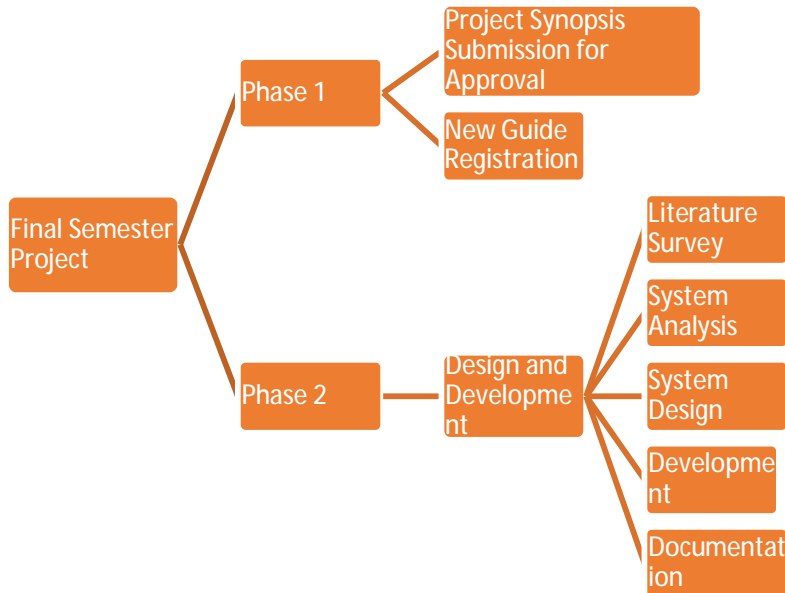
2.2 Project Steering Committee

To directly monitor and track projects a Project Steering Committee is setup at the University. The functions of this committee include:

- To coordinate and track all project related activities.
- To approve the supervisor after ensuring that the supervisor has the requisite qualifications and experience.
- Approve the project synopsis submitted by the student and conveying the same to the student and the learning centre through E-mail/ EduNxt.
- During the project synopsis approval process the Committee may give suggestions for improvement.
- All Correspondence regarding projects should be addressed to projects.it@smudde.edu.in (please mark subject as **MCA Project** -Request for).

3. Project Work - Phases

Project work will consist of two phases. Phase -1 : Project Synopsis and Guide Approval, Phase -2: Project Design and Development.



3.1 Phase 1: Project Synopsis and Guide Approval

Project Synopsis Submission for Approval

The student needs to submit the project synopsis for approval through their EduNxt portal. The project synopsis should be prepared in consultation with your guide. The template given in Annexure-I (also downloadable from EduNxt) is to be used. Your guide should approve the project Synopsis. The project synopsis should contain the clear statement about the project statement, the resource requirements of the proposed project where it would be suitable and along with the Guide Acceptance letter. Project Synopsis may be disqualified if it is prepared without the Guide's Signature. Refer to fig.-1 for details of the activities involved in this stage.

New Guide Registration

The Guide to be identified by the student and need to be registered with SMU-DE in the prescribed format given in Annexure-II (also downloadable from EduNxt). This is the one time process. The guide details and his/her credentials to be forwarded along with the project synopsis by the student to the project steering committee for New Guide Registration. Refer to fig.-2 for details of the activities involved in this stage.

All submitted Project synopsis will be processed by the project steering committee. All status information (Submission Acknowledgement/Approved/Rejected) will be informed to the student, Guide and LC through the e-mail. Once approved, the student can proceed to phase 2. Or, the student needs to work on the project synopsis for resubmission, in accordance with the

reason specified on the mail for rejection. The deadlines for Project synopsis submission / Guide Registration for your session please visit EduNxt portal or university website.

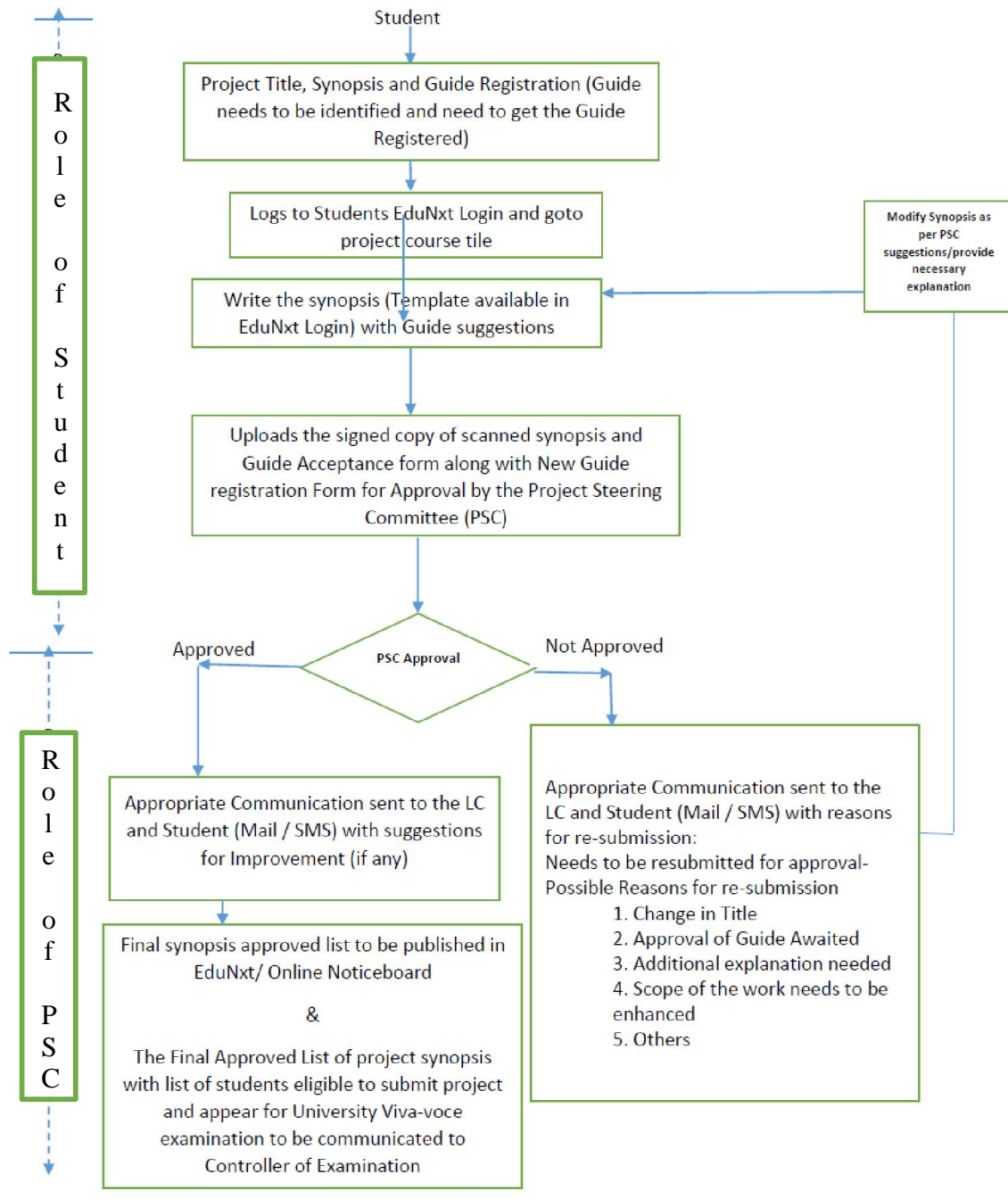


Fig. 1: Phase -1: Project Synopsis preparation and submission for approval

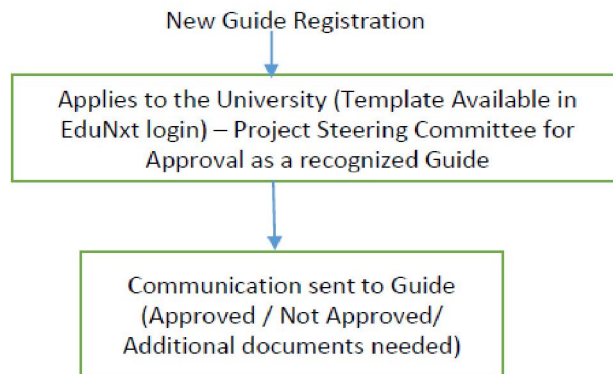


Fig. 2: Phase -1: New Guide Registration

3.2 Phase – 2: Project Design and Development

Project Development includes Literature survey, System Analysis, Design, Development and Documentation. Refer to fig.-3 for details of the activities involved in this Phase.

Literature Survey:

This stage includes the literature related to the chosen project title. It includes the study of existing methodologies, survey with relative industry and experts and prepare an abstract for a proposed system.

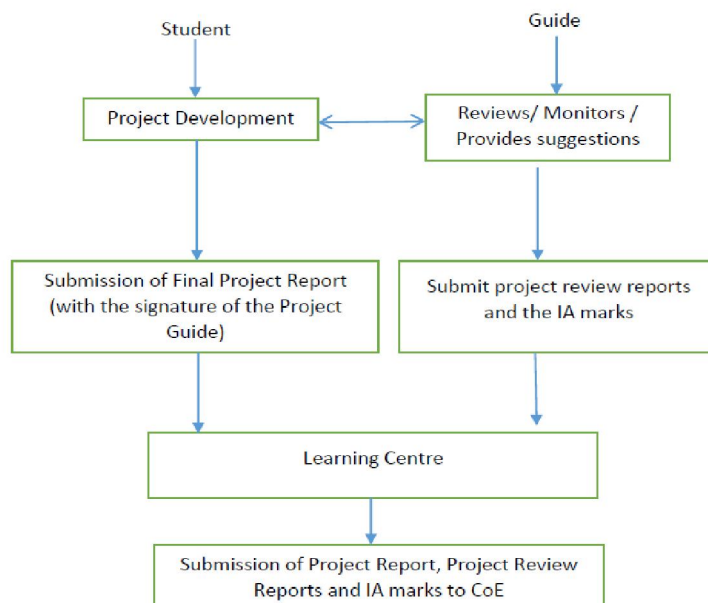


Fig. 3: Phase -2: Project Design and Development

System Analysis:

This stage includes to define the system environment required to implement the chosen project, Systems Requirements Specification (SRS) and software specification. In SRS, you must specify

- Project planning and project scheduling
- Data integrity and constraints
- Indicate the technology used and substantiate it with brief explanations.

System Design:

This includes

- Modularization details (Students must strictly implement the various stages of software development)
- Implement the various activities that are performed during the Requirements phase and support it with proper outputs and the necessary graphical representations like Data Flow Diagrams D.F.D, E-R diagrams, Flow charts. (Database design/Procedural Design/Object Oriented Design/input and output Design)
- Properly document the detailed design specifications and methods adopted during Design phase.

Development:

This stage involve actual development of the software:

- Perform coding of the project with the software used. This will include (i) Complete Project Coding (ii) Comments and Description (iii) Standardization of the coding/Code Efficiency (iv) Error handling (v) Parameters calling/passing (vi) Validation checks
- Debugging and Code improvement

Documentation:

On completion of the project Development, the student has to prepare the final project report. The entire project work is to be documented as the Project Report. The guidelines for project report preparation is given in section 5 of this document.

4. Broad areas for Project Work

There is no compulsion on choosing the project and the software language for the project. Table 1 shows some of the lists of tools and environment that can be used for project work.

Table 1

| | |
|---|--|
| Front end / GUI Tools : | Visual Basic, Power Builder, X-Windows (X/lib, X/motif, X/Intrinsic), Oracle Developer 2000, VC++, Jbuilder |
| RDBMS/back end : | Oracle, Ingres, Sybase, Progress, SQL Plus, Versant, MY SQL, SQL Server, DB2 , SQLite, |
| Languages : | C, C++, Java, VC++, C# |
| Scripting languages : | PERL, SHELL Scripts(Unix), Tcl/TK |
| Middle ware (component) technologies : | COM/DCOM, Active-X, EJB, Rational Rose, MSMQ, BEA, Message Q, MTS, CICS |
| UNIX internals : | Device Drivers, Pipes, RPC, Threads, Sockets, Kernel |
| Architectural concepts : | CORBA, TUXEDO |
| Internet technologies : | 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. |
| Networking technologies : | TCP/IP, SNMP, GSM, VoIP, PPP, IP-PSTN, SONET/SDH |
| Wireless technologies : | Zigbee, Blue Tooth, 3G, ISDN, EDGE ,WSN, MANET, Wi-Fi, Wi-Max |
| Realtime Operating system/ embedded skills : | QNX, RTLinux, OSEK, DSP, VRTX, RTXC, Nucleus , Vxworks |
| Operating systems : | ANDROID, iOS, WINDOWS OS, UNIX, LINUX, IRIX, SUN SOLARIS, HP/UX, PSOS, VxWorks, AS400, AIX, WINDOWS XP, DOS |

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.

An indicative list of project areas in which a student can do this project work are:

- Client-Server software : (Banking application, Railway, University application to name a few)
- WEB applications (Portals, Web services, E-commerce sites, Social Networking applications, Blog Engines to name a few)
- Gaming software/ Virus /Antivirus software/Audio- Video Players/ Language Tutors system/application software
- Computer Networking Projects based on various protocols (TCP/IP Internals/ Routing protocols/ Socket Programming/ Implementation of Switches & Routers/ Computer Networking-Communication Software, Performance Analysis, Network Security)
- Data processing in Warehouse Management
- IT Maintenance/Troubleshooting
- Mobile devices applications.
- Multimedia/Computer graphics
- Middleware Technology Development

5. Guidelines for Project Documentation

Final Project Report: Project Report must be prepared as follows:

- A. The length of the report may be about 70 pages, with 1.5 line spacing, 1.25 inches margin on either side, Times New Roman font with Font size as 16 and Bold for Chapter names, 14 and Bold for headings and 12 for content. It should be printed on A4 size papers.
- B. The Project Report should be hard bound. The signatures of both student and Guide should be present wherever applicable.
- C. Contents of project report must contain:
 - Cover Page and Title Page (Format given in Page 23)
 - Bonafide Letter (Format given in Page 24)
 - Abstract
 - Table of Contents(Format given in Page 25)
 - List of Figures(Format given in Page 26)
 - List of Tables(Format given in Page 27)
 - Chapter 1: Introduction
(This should include Overview of the System, Literature Survey, Proposed System, Objectives and Organization of the report)
 - Chapter 2 : Requirement Specification
(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)
 - Chapter 3 : System Design
(Modularization details, Data integrity & constraints including database design, Procedural design, User interface design)
 - Chapter 4 : Implementation
(Complete code (well indented) or a detailed specification instead of code*, comments & Description can also be provided. 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.)
 - Chapter 5 : Results (Input and Output Screen snapshots)
 - Chapter 6 : Limitations and Future Application of the Project
 - Conclusion
 - References/Bibliography (Format given in Page 28)

**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)*

D. If any project report is received in the absence of the items listed above, it will be considered as violation of project guidelines. Violation of Project Guidelines may lead to rejection of the Project.

E. In any case, length of the project report should not be more than 100 pages.

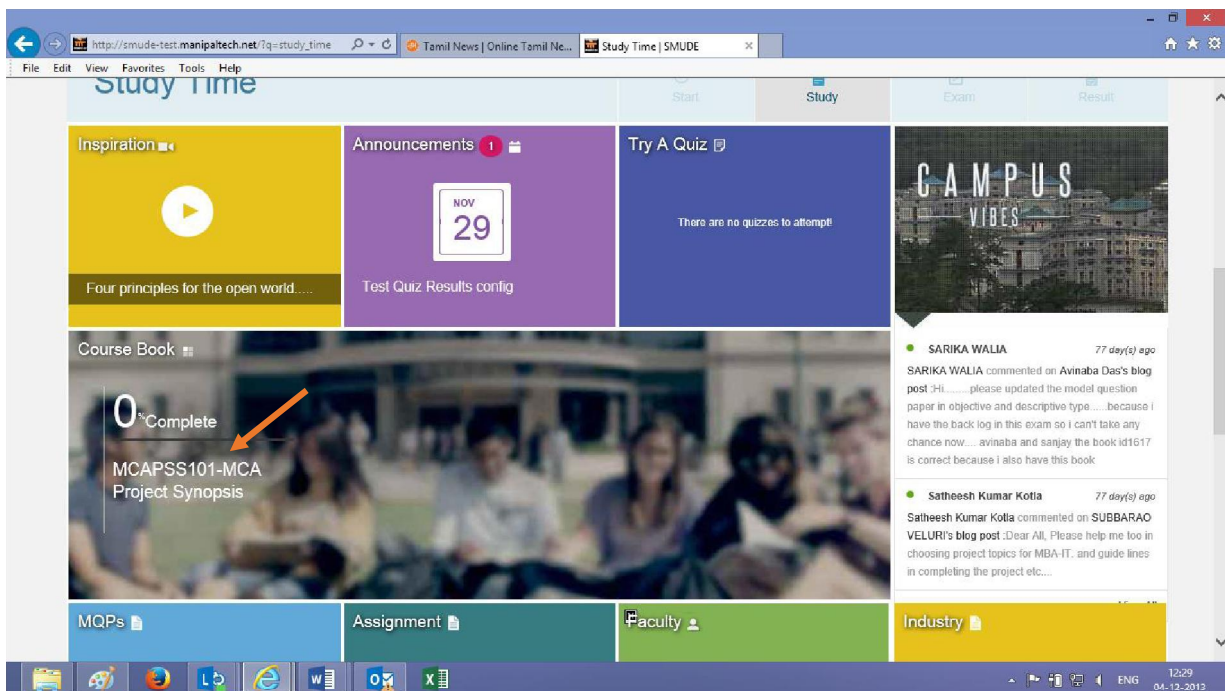
6. EduNxt Access Procedure

6.1 For Project Synopsis Submission

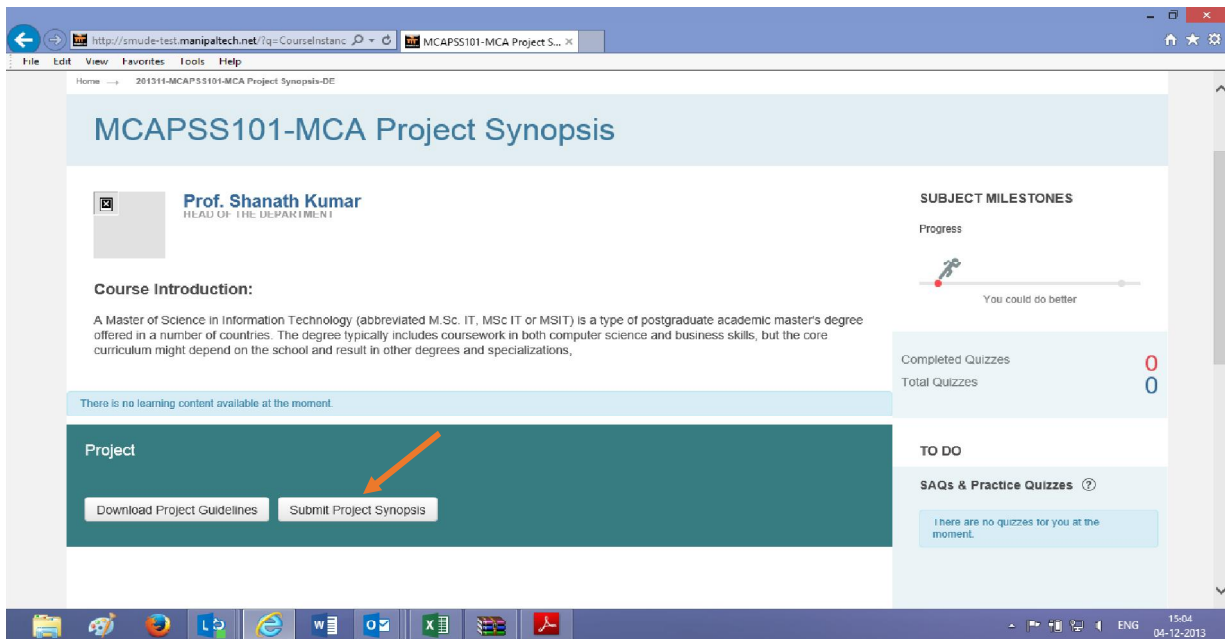
Step 1: Go to the EduNxt URL (<http://edunxt.smude.edu.in>) and enter your user-id and password.



Step 2: Go to Project Tile (for Ex. "MCAPSS101-MCA Project Synopsis") and click on it to enter to the Project synopsis submission page.



Step 3: Click on "Submit Project Synopsis"

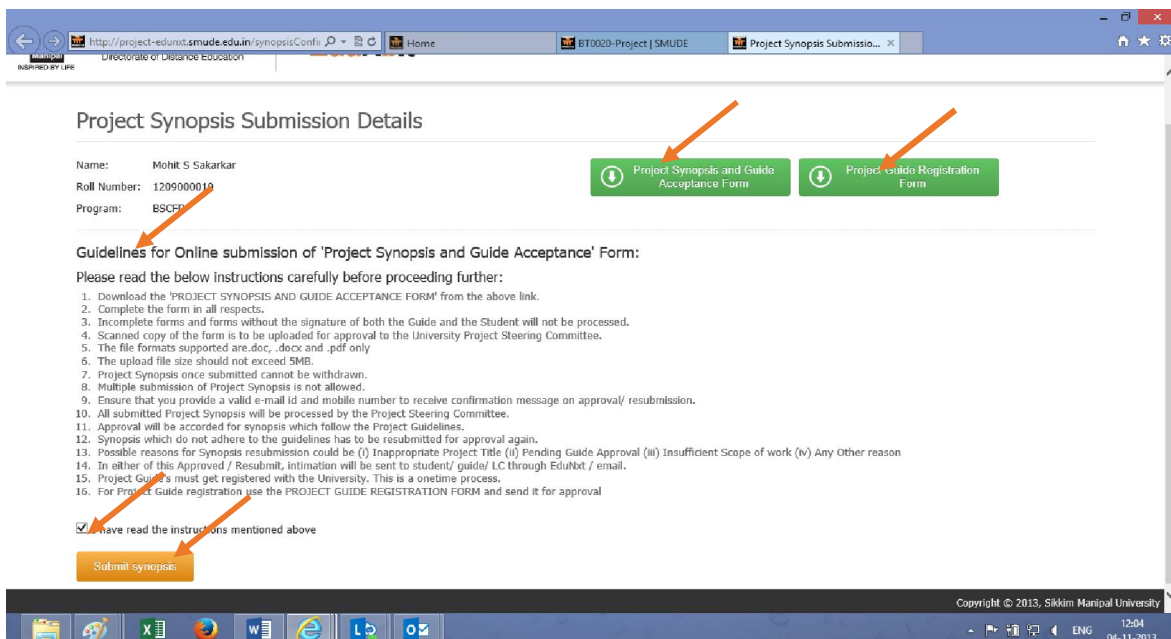


Step 4:(i) Read the Guidelines carefully before filling the form.

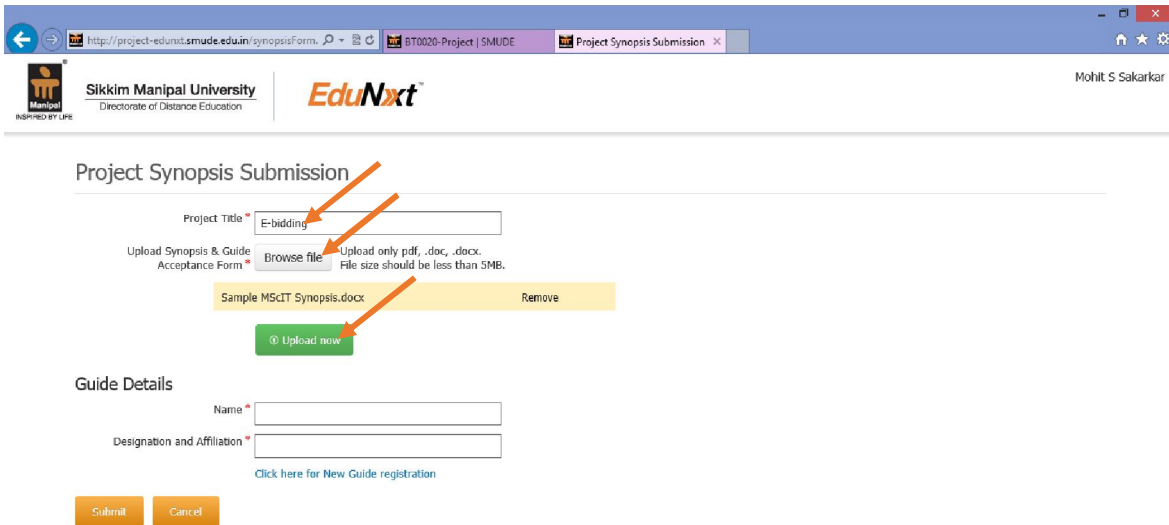
(ii) Download the "Project Synopsis Submission and Guide Acceptance Form" for Project Synopsis Submission (or see Annexure I) or "Project Guide Registration form" for New Project Guide Approval (or see Annexure II).

(iii) Make your Project Synopsis ready for upload. (Fill the form in all aspects, scan and convert your document in to either .doc or .pdf file)

(iv) Select the checkbox and click on "submit synopsis" button.

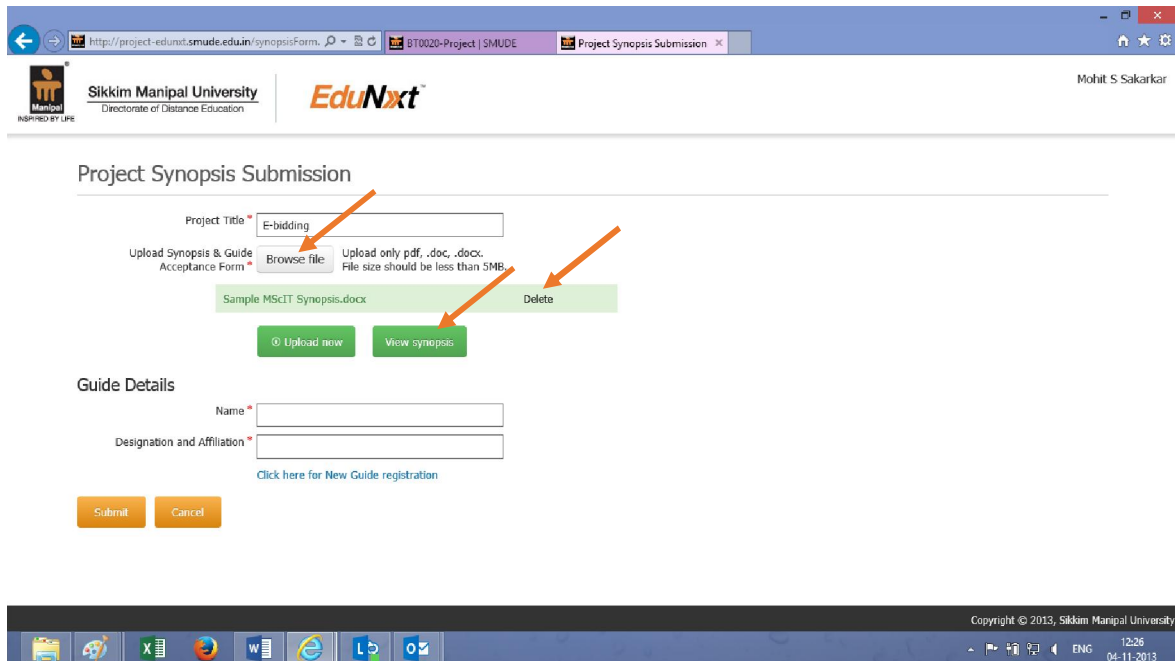


Step 5: Fill the Project Synopsis details, Select the scanned file by using “browse file” option. (Note: It accepts only .doc, .docx and .pdf formats). Upload your file by clicking on “Upload now” button.



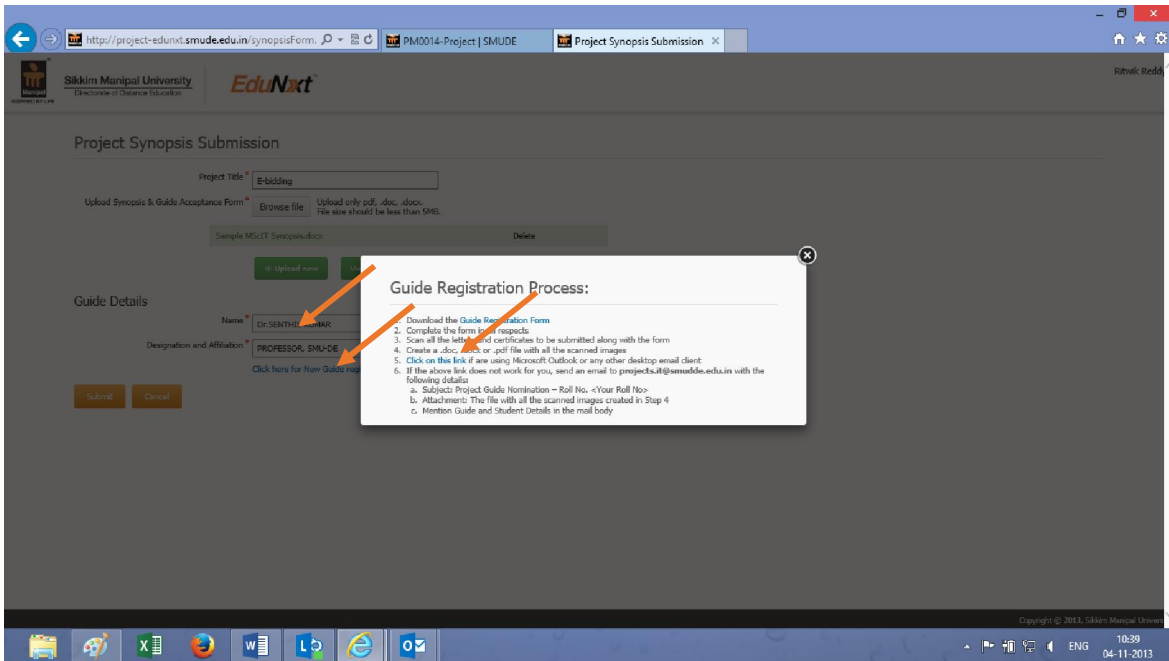
The screenshot shows the 'Project Synopsis Submission' form. The 'Project Title' field contains 'E-bidding'. The 'Upload Synopsis & Guide Acceptance Form' field has a 'Browse file' button. A file named 'Sample MSCIT Synopsis.docx' is listed with a 'Remove' button. A green 'Upload now' button is highlighted with an orange arrow. Below the form are 'Submit' and 'Cancel' buttons.

Step 6: if you want to see the file which you have uploaded, click on “view synopsis” button. Further if you want to edit/delete the uploaded file, Delete the file by clicking “delete” option and upload the latest file by using “browse file” option.

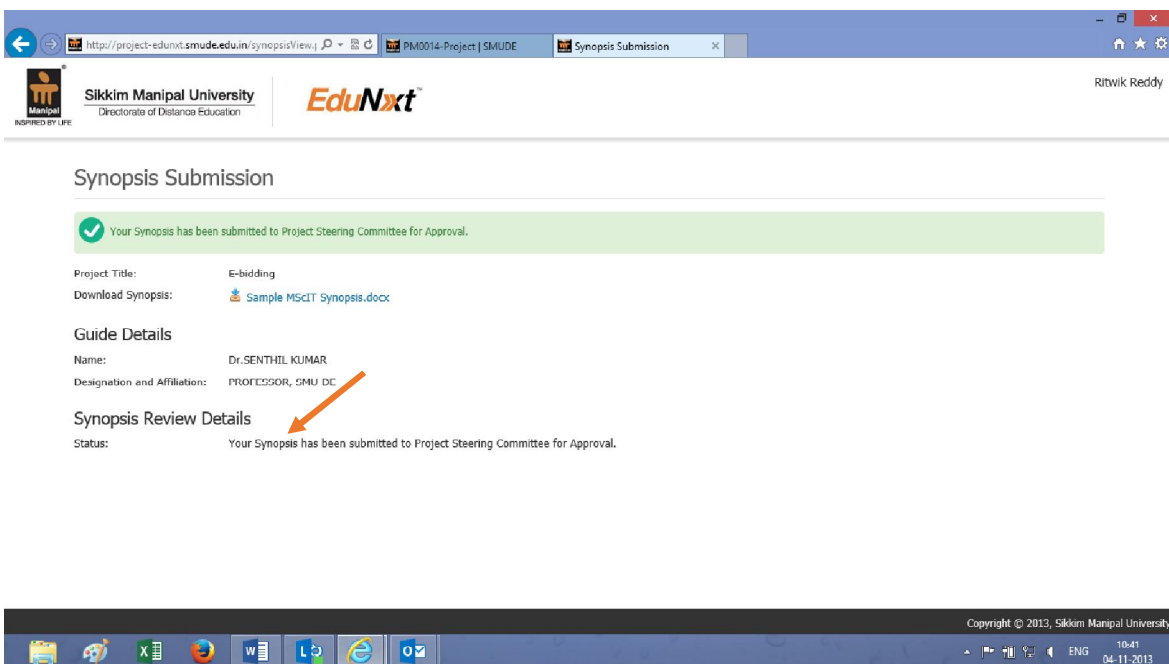


This screenshot is similar to the previous one but includes a 'View synopsis' button next to the 'Sample MSCIT Synopsis.docx' file. An orange arrow points to the 'View synopsis' button. Another orange arrow points to the 'Delete' button next to the file name. The 'Submit' and 'Cancel' buttons are also visible.

Step 7: Fill the Guide Details and click on “Click here for New guide registration” for forwarding Guide registration form (Download the form, which is available in Guidelines page or click on “Guide Registration form”) along with his/her credentials to the project steering committee for approval through e-mail.

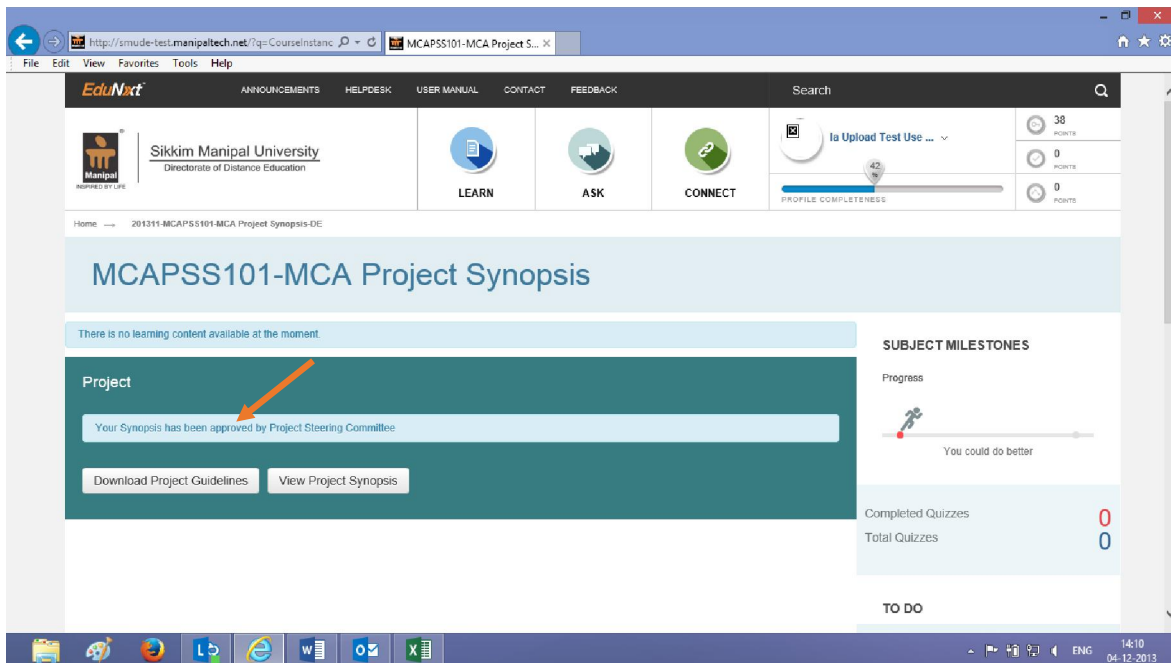


Step 8: Once project synopsis and guide details are uploaded, click on “submit” button. On successful submission, your status will show as “your synopsis has been submitted to project steering committee for Approval”.

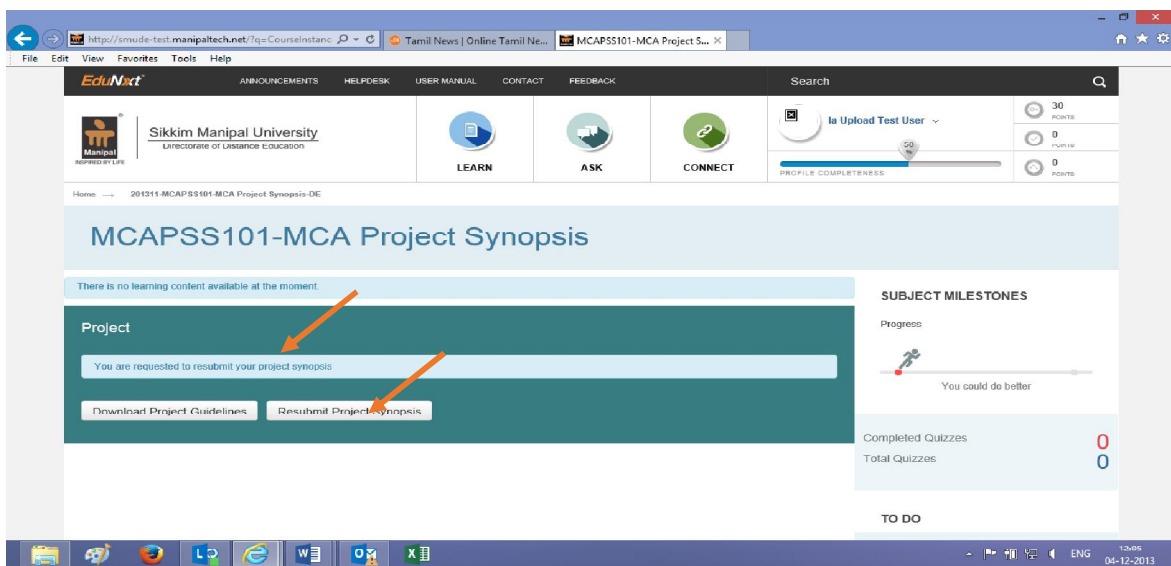


Step 9: (i) Once submitted, Project steering Committee will review your Synopsis submission and Guide Registration. You will get the Status updation in your mail box and EduNxt login.

(ii) If your synopsis is accepted by Project steering committee, you will get the approved mail and you can start your project work.



Step 10: if your synopsis is rejected by project steering committee, you will be requested to resubmit your synopsis again. Then click on “resubmit project synopsis” and start from step 4.



7. Project Evaluation

During the project work, the internal guide in the Learning Centre will monitor its progress. The **Project Work** is evaluated through (i) Continuous Assessment (Internal Assessment) by Guide and (ii) University Term End examination. Internal Guide in Learning Centre allots 240 marks for continuous assessment whereas 560 marks are allotted for end examination. Project evaluation is done by assessing project report, presentation and demonstration of project and Viva. Total marks of project for 16 credit would be 800 Marks. To be declared successful, the student should secure at least 40% marks separately in both (i) Continuous Assessment by Guide (i.e. 96/240) and (ii) University term End examination (i.e. 224/560)

A. Project Assessment Pattern and Marks distribution (for 16 credit Course):

The course titled “Project Work” bearing the subject code MCA6020 has 16 credits weight and the project has to be completed for duration of 480 Hours.

| TABLE 1 - COMPONENTS OF PROJECT EXAMINATION | | | | | |
|---|----------|--|----------------|------------------------------------|------|
| PAPER | PE 1 | PE 2 | PE 3 | PE 4 | PE 5 |
| MCA6020 | Synopsis | Participation in Project Work and Accomplishment | Project Report | Demonstration + Presentation | Viva |

| TABLE 2 - PROJECT MARKS DISTRIBUTION | | | | | | | | | | | | | |
|--------------------------------------|---------------|-----|--------|------|-----|------|-----|------|-----|------|-----|------|-----|
| PAPER | MAXIMUM MARKS | | | PE 1 | | PE 2 | | PE 3 | | PE 4 | | PE 5 | |
| | INT | EXT | PE MAX | INT | EXT | INT | EXT | INT | EXT | INT | EXT | INT | EXT |
| MCA6020 | 240 | 560 | 800 | 120 | NA | 120 | NA | NA | 200 | NA | 200 | NA | 160 |
| | | | | | | | | | | | | | |

| TABLE 3 - PROJECT PASSING REQUIREMENTS | | | | | | |
|--|-------------------|-------------------|--------------------|-------------------|----------------------|----------------------------|
| PAPER | PROJECT EXAM | | COMPREHENSIVE EXAM | | TOTAL MARKS A + B | PASS MARKS X + Y > 40 % |
| | MAXIMUM MARKS - A | PASSING MARKS - X | MAXIMUM MARKS - B | PASSING MARKS - Y | | |
| MCA6020 | 800 | 320 | N A | N A | 800 | 320 |

B. Resubmission of the MCA project in case of failed students

If the student is unsuccessful in the project, s/he should exercise the whole cycle of the project again, right from the submission of the project synopsis. Students are advised to select a new

topic for the project with Guide's suggestion and should prepare and submit the project synopsis to the project steering committee for approval as per the project guidelines.

C. Important points for the project work

- Not more than one student is permitted to work on a Project.
- On receiving the approval of Synopsis and Guide from the University, then only you should start with your project work.
- 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.

ANNEXURE I

SUBMISSION OF PROJECT SYNOPSIS AND GUIDE ACCEPTANCE FORM

(To be submitted to the project steering committee)

PART A: Synopsis Registration.

I. Student Details:

1. Name of the program :
2. Name of the Student :
3. Roll Number :
4. Session & Year :
5. Name and address of learning centre :

II. Project Details

6. Title of the Project :
7. Problem Statement :
(About 500 words)

8. Hardware requirements :
9. Software requirements :
10. Methodology to be used :

III. Guide Details:

11. Name of Proposed Guide :
12. Guide registration No. (If available) :
13. Designation :
14. Affiliation :
15. Qualification :
16. Total Experience :
17. Communication Address :
18. Contact No. :
19. E-mail ID :

PART – B : Guide Acceptance

I Dr./Mr./Mrs. _____ working as
_____ with _____ hereby confirm my
willingness to guide Mr./ Ms. _____ RollNo.
_____, attached to Learning Centre (code) _____
(Name) _____ (City) _____ in the topic
_____ (title of the project)
during the Spring/ Summer/ Fall/ Winter session of _____ (year) period
_____ (month/year) to _____ (month/year). I
agree to this timeline and also to submit the project status/ Internal Assessment marks to
the University.

Place:

Date :

(Signature of the Guide)

(Note: A Guide needs to get registered with the University if he/ she is guiding a SMUDE project for the first time. Guide Registration form can be downloaded from the University Website)

DECLARATION

I hereby declare that this project synopsis is an original work carried by me and will not submitted to any other University for fulfilment of any course of study.

Place:

Date :

(Signature of the Student)

(*Filled in Application forms to be signed by both student and the Guide. Forms must be scanned in either .pdf / .doc format and submitted through the EduNxt student's Login. For uploading please refer section 6.1 of this document)

ANNEXURE II
PROJECT GUIDE REGISTRATION FORM
(To be submitted to the project steering committee)

1. Name :

2. Date of Birth :

3. Present Employer :

4. Designation :

5. Contact Details :

i) Residential Address:

ii) Office Address :

iii) All communications to be sent to: Residential/ Office address (tick any one)

iv) Contact No. :

v) E-mail id :

6. Education Qualification (start with highest qualification):

(Please attach photocopies of degree certificates)

| SNo | Name of the Degree | Specialization | Year of Passing | Institution/ University | Class Obtained |
|-----|--------------------|----------------|-----------------|-------------------------|----------------|
| | | | | | |
| | | | | | |
| | | | | | |

7. Area of Specialization/Interest :



8. Total yrs. of Experience :
(Please attach photocopies of Experience letters)

| SNo | Name of the Organization | Designation | From | To |
|-----|--------------------------|-------------|------|----|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

I hereby declare that the information provided by me is true. I agree with the rules and regulations given by the University.

Signature

FOR OFFICE USE

Following details have been verified

| | Yes | No |
|---|--------------------------|--------------------------|
| 1) Qualification | <input type="checkbox"/> | <input type="checkbox"/> |
| 2) Experience | <input type="checkbox"/> | <input type="checkbox"/> |
| 3) Approved for Department / Specialization | <input type="checkbox"/> | |

Signature
(Faculty in-charge)

Signature
(Chairman-Project Steering Committee)

(*Filled in Registration forms must be scanned in either .pdf / .doc format and submitted along with credentials (Scanned Degree Certificates) to the email id projects.it@smudde.edu.in)

About Cover page and Title Page

<TITLE OF PROJECT REPORT>

A PROJECT REPORT

Under the guidance Of

<Guide Details>

Submitted by

<Student Details>

***in partial fulfilment of the requirement for
the award of the degree***

Of

Master of Computer Applications

Department of Information Technology



INSPIRED BY LIFE

Sikkim Manipal University

Directorate of Distance Education

<MONTH> & <YEAR>

BONAFIDE CERTIFICATE

Certified that this project report titled
“.....” is the bonafide work of
“.....<NAME OF THE CANDIDATE with REG.NO>.....” who
carried out the project work under my supervision.

SIGNATURE

SIGNATURE

HEAD OF THE LC

GUIDE

<<Name>>

<<Name >>

<<Address >>

<<Address>>

TABLE OF CONTENTS

| CHAPTER NO. | TITLE | PAGE NO. |
|-------------|---------------------------------|------------|
| | ABSTRACT | i |
| | LIST OF FIGURES | ii |
| | LIST OF TABLES | iii |
| 1. | INTRODUCTION | 1 |
| | 1.1 GENERAL | 1 |
| | 1.2..... | 2 |
| | 1.2.1 General | 5 |
| | 1.2.2 | 12 |
| | 1.2.2.1 | 19 |
| | 1.2.2.2 | 25 |
| | 1.2.2.3 | 29 |
| | 1.2.3 | 30 |
| | 1.3..... | 45 |
| | 1.4 | 58 |
| 2. | REQUIRMENT SPECIFICATION | 69 |
| | 2.1 GENERAL | 75 |
| | 2.1.1 | 99 |
| | 2.2..... | 100 |

List of Figures

1. Figure <Chapterno>.<Figureno> : <caption of the Figure 1>
2. Figure 1.2 : Database Storage
3.

Sample figure in the document:

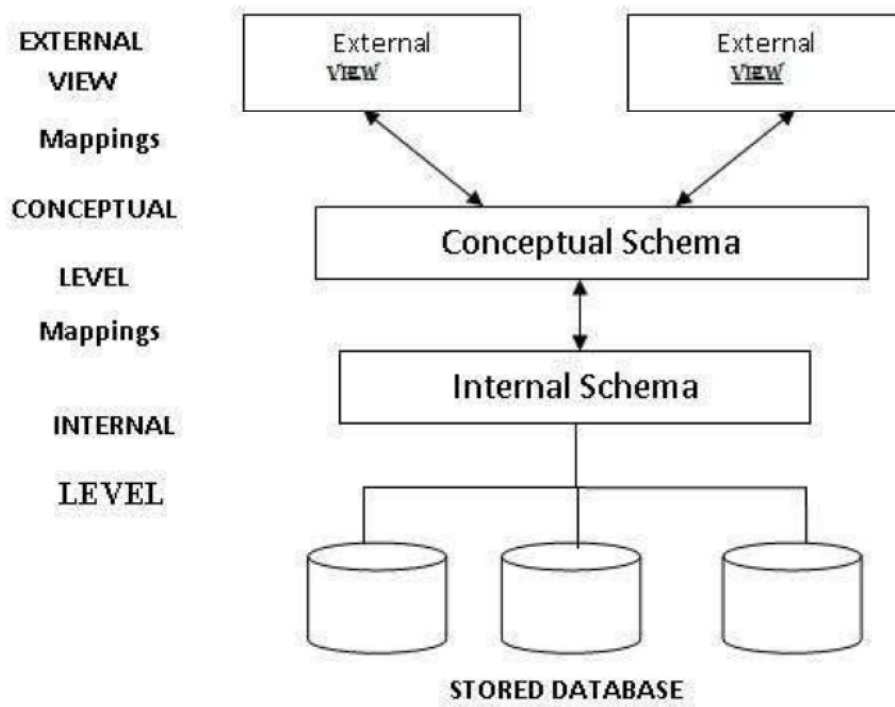


Figure 1.2: Database Storage

List of tables

1. Table <Chapterno>.<Tableno> : <caption of the table1>
2. Table 1.2 : Students Database
3.

Sample Table in the document:

Table 1.2 Students database

| SNO | RegNo | Name | Dept | Sem |
|-----|-----------|----------|------|-----|
| 1 | 120000001 | A.Aditya | IT | IV |
| 2 | 120000002 | Aditi | MBA | III |
| | | | | |

References/Bibliography:

The listing of references should be in IEEE Reference Style. In “REFERENCES” all reference materials to be in alphabetical order in single spacing and left – justified. The reference material should be listed in the alphabetical order of the first author. Any website reference or Books must be referred preceded by the publications reference.

REFERENCES

[1] Chun-I Fan ; Dept. of Comput. Sci. & Eng., Nat. Sun Yat-sen Univ., Kaohsiung ; Chien-Nan Wu ; Wei-Zhe Sun “Multi-recastable E-Bidding Scheme “ published in Intelligent Systems Design and Applications, 2008. ISDA '08. Eighth International Conference on (Volume:3)

[2] Patrick Maille, ENST Bretagne and Bruno Tuffin, IRISA – INRIA France “Multi-Bid Auctions for Bandwidth allocation in communication Networks” published in IEEE INFOCOM 2004.

[3]

[4] <http://www.biddingforgood.com/auction/BiddingForGood.action>

[5].....

[6] “JAVA : Complete Reference” by Herbert Schildt 8th Edition, Tata Mc-Graw-Hill Education (2011)