IMCA (5th Semester)

060060509: DSE 7: Introduction to Software Engineering

Project Guidelines

Objective: To introduce the concept of software engineering, development models and object oriented paradigm for efficient design and development of reliable software.

Course Outcomes: Upon completion of the activity, students shall be able to
CO1: Describe the basic concepts of Systems, its types, Software Engineering and its paradigms.
CO2: Compare and contrast conventional and object-oriented software process models with its applicability.
CO3: Recognize and apply the V-model framework for software development and testing.
CO4: Determine and analyse system requirements and draft initial requirement document.
CO5: Design UML diagrams and Data Dictionaries for a given system.
CO6: Classify and construct architectural, component level and user interface design with data reports for a given system.
CO7: Comprehend the state-of-art software engineering development trends

Programme Outcomes:
PO 1: Proficiency in and ability to identify problems related to computer science as well as design and apply computational knowledge to solve them.
PO 2: Ability to design, develop, test and maintain system, component, product or process as per needs and specification.
PO 3: Understanding of professional and ethical role and responsibility.
PO 4: Recognition of the need for and an ability towards life-long learning
PO 5: Knowledge of programming languages, database systems, operating systems, software engineering, Web & Mobile technology and relevant modern issues along with strong project development skill.
PO 6: Ability to demonstrate the use of modern tools, models and languages to solve problems related to software development.
PO 7: An ability to communicate effectively with a range of audiences.

Tools and Technologies:
A student must use the following computing environment to develop their project.
- NetBeans with JUnit for unit testing as in 2nd unit.
- MySQL or PostgreSQL for data dictionary as in 2nd unit.
- UMLET or E-Draw for system diagrams as in 4th unit.

Approved

Mr. Amish Patel & Dr. Jaishree Tailor
## Phase based Schedule

<table>
<thead>
<tr>
<th>Phase</th>
<th>Phase Title</th>
<th>Activities to be done by Students</th>
<th>Activities to be done by Teacher</th>
<th>Deliverables</th>
<th>Related Units</th>
<th>Duration (In weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>System understanding, needs and objectives</td>
<td>Case-based requirement analysis</td>
<td>Initial Requirement Document (IRD)</td>
<td>1, 3</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>System Analysis</td>
<td>Requirement analysis and scope description</td>
<td></td>
<td></td>
<td>2, 3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Determine System Functionalities and User roles</td>
<td>Presentation on IRD design and Project Report drafting</td>
<td></td>
<td>2, 3</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>System Modelling</td>
<td>UMLs and DFDs</td>
<td>Demonstrate modelling of each design</td>
<td>System Design</td>
<td>4, 5</td>
<td>5-6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Dictionary</td>
<td>Presentation on Technical Report Writing</td>
<td></td>
<td>4, 5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Table Design</td>
<td></td>
<td></td>
<td>4, 5</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User Interface Design &amp; Identification of Reports with validations</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Technical Writing</td>
<td>Final Documentation</td>
<td></td>
<td>Software Requirement Specification</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>
Project Guidelines:

[A] General Guidelines:
- The development of Project SRS must follow 80% of the concept of the syllabus.
- Team is expected to design a project requirement document, such that it is sufficient for approximately (200 X No. of students in team) hours of project work implementation for 6th semester.
- Course teacher shall act as Guide.
- Project definitions shall be approved by the Project Committee that will subsequently be given to the student team by the course teacher.
- A project shall be done in a team consists of maximum 4 students and minimum 3 students. Team shall be formed by students in a first week after commencement of semester.

[B] Reporting:
- Project team must submit the timeline to the guide in the second week.
- Timeline must have 12-15 distinct and clear task lists of each individual member in the team.
- Status of the timeline shall be updated by course teacher.
- Format of the timeline is given below:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Project Task</th>
<th>Estimated</th>
<th>Actual</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Start Date</td>
<td>End Date</td>
<td>Start Date</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Log book must be maintained by each project team. Log book must be signed by guide at the end of meeting.
- Format of Logbook is as below:

Logbook format:
First Page:
- Team No:
- Project Title:
- Enrollment No and Name:
Class and Division:

Second Page:
<table>
<thead>
<tr>
<th>Date</th>
<th>Enrollment No.</th>
<th>Task Done by Student</th>
<th>General Comment by Lab Teacher/Support &amp; Guidance Team</th>
<th>General Comment by Course teacher</th>
<th>Student Signature</th>
<th>Lab Teacher/Support &amp; Guidance Team Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;enrollment1&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;enrollment2&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;enrollment3&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;enrollment4&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[C] Evaluation and Assessment:

- To achieve desired quality and verify progress of the project development work, Continuous Internal Evaluation (CIE) has been adopted.
- Continuous internal evaluation shall be done on the basis of and Project Report and (A5) Presentation (A6) evaluation defined by the course teachers as below assessment policy:

<table>
<thead>
<tr>
<th>Assessment Code</th>
<th>Assessment Type</th>
<th>Duration of each team</th>
<th>Occurrence</th>
<th>Each of marks</th>
<th>Weightage in CIE of 50 marks</th>
<th>Tentative Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>A5</td>
<td>Project Report &amp; Viva</td>
<td>15 Minutes</td>
<td>02</td>
<td>10</td>
<td>20 Marks</td>
<td>Project Report -1: 4th week of July</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Project Report-2: 4th week of September</td>
</tr>
<tr>
<td>A6</td>
<td>Presentation</td>
<td>30 Minutes</td>
<td>02</td>
<td>15</td>
<td>30 Marks</td>
<td>Presentation-1: 2nd week of August</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Presentation-2: 1st week of October</td>
</tr>
</tbody>
</table>

- During presentation, a student has to bring log book. Student shall use presentation slides to explain the project work.
- Student may be asked to write the scenario, validations, entity-relations related to the project during presentation viva.
- No make-up work shall be accepted for missed or failed presentation or project report & Viva.
- Late submission of work and project reports shall be penalized as 5% of full marks per day for maximum five days after the cut-off date. In case, if a student has failed to meet the deadlines, he/she shall receive zero marks in particular parameter.
- First presentations will be evaluated by guide while the last presentation will be evaluated by panel appointed by Project Committee.
- Project work will be evaluated mainly on the following Criteria:
  - Timeliness
  - Documentation
Presentation

The detailed evaluation of the above criteria is mentioned below:

**Project Report & Viva -1:** It shall have included first two chapters of report as per the format discussed [E] Project Report & Submission. Evaluation based on following criteria:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Marks (50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Flow</td>
<td>10</td>
</tr>
<tr>
<td>Formatting</td>
<td>10</td>
</tr>
<tr>
<td>Technical Writing</td>
<td>20</td>
</tr>
<tr>
<td>Viva</td>
<td>10</td>
</tr>
</tbody>
</table>

**Project Report & Viva -2:** It shall have included all chapters of report as per the format discussed [E] Project Report & Submission. Evaluation based on following criteria:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Marks (50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Flow</td>
<td>10</td>
</tr>
<tr>
<td>Formatting</td>
<td>05</td>
</tr>
<tr>
<td>Technical Writing</td>
<td>20</td>
</tr>
<tr>
<td>Viva</td>
<td>10</td>
</tr>
<tr>
<td>Incorporate suggestion given in presentation-1</td>
<td>05</td>
</tr>
</tbody>
</table>

**Project Presentation – 1:**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Marks (100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
<td>10</td>
</tr>
<tr>
<td>System Understanding</td>
<td>20</td>
</tr>
<tr>
<td>Study of at least three similar systems</td>
<td>20</td>
</tr>
<tr>
<td>Normal &amp; Expected Requirements</td>
<td>20</td>
</tr>
<tr>
<td>Exciting Requirements</td>
<td>15</td>
</tr>
<tr>
<td>Project Timeline &amp; Status</td>
<td>15</td>
</tr>
</tbody>
</table>

**Project Presentation – 2:**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Marks (100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Diagrams</td>
<td>30</td>
</tr>
<tr>
<td>Data Dictionary &amp; Constraints</td>
<td>30</td>
</tr>
<tr>
<td>Reports</td>
<td>25</td>
</tr>
<tr>
<td>Project Timeline Status</td>
<td>15</td>
</tr>
</tbody>
</table>

Note: Each parameter of presentation evaluation criteria is evaluated using Viva for the same.

[E] Project Report & Submission:

[Signatures]

MR. AMISH PATEL & DR. JAIISHREE TAILOR
- Project report must contain following:

<table>
<thead>
<tr>
<th>i.</th>
<th>Title Page / Front Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ii.</td>
<td>Institute Certificate</td>
</tr>
<tr>
<td></td>
<td>[The certificate should be duly filled signed by course teacher and program coordinator.]</td>
</tr>
<tr>
<td>iii.</td>
<td>Declaration</td>
</tr>
<tr>
<td></td>
<td>[Declaration certificate [A self-declaration regarding work originality and non-plagiarism. Declaration certificate format is given below at end of document.]</td>
</tr>
<tr>
<td>iv.</td>
<td>Acknowledgement</td>
</tr>
<tr>
<td>v.</td>
<td>Table of Contents with page numbering</td>
</tr>
<tr>
<td>vi.</td>
<td>List of Tables, Figures, schemes</td>
</tr>
</tbody>
</table>

1. System
   1.1. Introduction (Description in general that must include physical process and data flow)
   1.2. Existing System Study (at least three system solutions that are ICT enabled)
      1.2.1. System 1 [Citations mandatory]
      1.2.2. System 2 [Citations mandatory]
      1.2.3. System n [Citations mandatory]
      1.2.4. Comparative Study
      1.2.4.1. Distinct features
      1.2.4.2. Common features
      1.2.4.3. Limitations
      1.2.4.4. Features adopted for proposed system

2. Proposed System
   2.1. Definition
   2.2. Objectives
   2.3. Scope
   2.4. Requirements
      2.4.1. Expected
      2.4.2. Exciting
   2.5. Software Process Model (description of the relevant process model used in context of the project)
   2.6. Acronyms, and Abbreviations
   2.7. Proposed technologies (to be used with justification)

3. System Design
   3.1. Use-Cases
      3.1.1. Actors and roles
      3.1.2. Scenario description of each Use-Case
      3.1.3. Use-Case Diagrams
   3.2. Activity Diagrams
   3.3. Sequence/Data Flow Diagrams/Class Diagrams
   3.4. Data Dictionary with Constraints
   3.5. System Architectural Diagram (with explanation)
   3.6. User Interface Design
      3.6.1. UI Specifications with technical justifications (fonts, elements and its measurements, appearance, alignment etc.)
      3.6.2. Validations

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3.6.3. Navigations
3.6.4. Screenshots
3.7. Reports
  3.7.1. Inputs and Outputs
  3.7.2. Layouts
  3.7.3. Report usage
4. System Enhancements
5. Learning during Project Work, i.e. "Experience of Journey during Project Duration"
6. References
  6.1. Books
  6.2. Web references
  6.3. Additional references (technical white papers, research articles, magazines, technical manuals etc.)

Guideline for Report Formatting:
- Use A4 size page with 1" margin all sides.
- Header should include Project title and footer should contain page number and enrollment numbers.
- Chapter Name should be of Cambria font, 26 points, Bold.
- Main Heading should be of Cambria font, 16 points, Bold.
- Sub Heading should be of Cambria font, 12 points, Bold.
- Sub heading of sub heading should be of Cambria font, 12 points, Bold, Italic.
- Paragraph should be of Cambria font, 12 points.
- Line spacing - 1.5 lines, before - 0, after - 0.
- Before chapter 1, give page number in roman letter (Title Page, Project Certification Form, Acknowledgements, Table of Contents/Index with page numbering, List of Tables, Figures, Schemes and Summary/abstract of the project work).

- Team must submit one spiral copy of project report along with log book compulsorily in the prescribed format along with soft copy in CD on or before the date of final project document submission with dual approval of course teacher and signed certificates from institute by concern authority.
- In the CD, a team has to submit softcopy of each presentations and final project document. A team may add any significant file which they have presented or submitted to their course teachers i.e. animation video, video of working project demonstration, etc.
- On the CD mention Team number, Project title, Subject code, Subject Name and enrollment number of each team members in ascending order.
- Refer following Title/front-page format.

Project entitled with

<<TITLE IN CAPITAL LETTERS>>

MR. AMISH PATEL & DR. JAISHREE TAILOR
Submitted By,
<<Student's Name (Enrollment Number)>>,
<<Student's Name (Enrollment Number)>>
<<Student's Name (Enrollment Number)>>

Guided By,
<<Course teacher Name>>

in partial fulfilment of the requirements
for the 5th Semester
Subject 030010515-Introduction to Software Engineering
of Bachelor of Computer Applications
B. V. Patel Institute of Computer Science,
Uka Tarsadia University.
November, 2019.

[E] Institute Certificate:
- Institute certificate will be provided by course teacher.
- Students will certify their project from the course teacher and programme coordinator on or before last week of semester failing which student will not be allowed to appear for the external examination.

[G] Declaration Certificate: Each project document must have declaration certificate page as follows:
DECLARATION

We hereby declare that the project titled "<>" is fully implemented by us. It is neither paid nor copied. Even though, later on, in case of any infringement found for this project work, we are solely responsible for the same and understand that as per UGC norms, the University can revoke the degree conferred to us.

Student Enrollment No, Name and Signature

[Signature]

Mr. Amish Patel & Dr. Jaishree Tailor