Course Code	Course Title	Credits	Lectures /Week
USCSP605	Project Work – II	2	3
Refer to the Project Guidelines mentioned at the end			

Evaluation Scheme

I. **Internal Evaluation for Theory Courses – 25 Marks**

(i) Mid-Term Class Test – 15 Marks

- It should be conducted using any **learning management system** such as **Moodle** (Modular object-oriented dynamic learning environment)
- The test should have **15 MCQ's** which should be solved in a time duration of **30 minutes.**

(ii) Assignment/ Case study/ Presentations – 10 Marks

- Assignment / Case Study Report / Presentation can be uploaded on any **learning management system**.

II. **External Examination for Theory Courses – 75 Marks**
- Duration: **2.5 Hours**
- Theory question paper pattern:

	All questions are compulsory.		
Question	Based on	Options	Marks
Q.1	Unit I	*Any 4 out of 6*	20
Q.2	Unit II	*Any 4 out of 6*	20
Q.3	Unit III	*Any 4 out of 6*	20
Q.4	Unit I, II and III	*Any 5 out of 6*	15

- All questions shall be compulsory with internal choice within the questions.
- Each Question may be sub-divided into sub questions as a, b, c, d, etc. & the allocation of Marks depends on the weightage of the topic.

III. **Practical Examination**
- Each subject carries 50 Marks

  40 marks + 05 marks (journal) + 05 marks (viva)
- Duration: **2 Hours** for each practical course.
- Minimum **80% practical** from each core subjects are required to be completed.
- **Certified Journal is compulsory for appearing at the time of Practical Exam**
- The final submission and evaluation of **journal in electronic form** using a Learning Management System / Platform can be promoted by college.

IV. Project

The evaluation of the project will include a viva voce, which will assess the project based on the following parameters:

- **Documentation – 30 Marks:** The completeness, accuracy, and professionalism of the project documentation, including the project report and supporting materials, will be considered.

- **Quality of the Project – 15 Marks:** The overall quality of the project, including its design, implementation, and user experience, will be evaluated.

- Working of the Project – 20 Marks: The functionality and performance of the project will be assessed to determine how well it meets the specified requirements and objectives.

- **Project Presentation – 15 Marks:** The clarity, organization, and effectiveness of the project presentation will be evaluated.

- **Viva – 20 Marks:** The viva voce session will provide an opportunity for the student to demonstrate their knowledge and understanding of the project, as well as to answer questions and engage in a discussion with the evaluators.

Project Guidelines (*for USCSP505 and USCSP605*)

Aim:

The Project Work as part of B.Sc. Computer Science program provides students with practical experience in applying their knowledge and skills to real-world projects, emphasizing hands-on experience in industry-standard project practices. It focuses on project development, implementation, and deployment using computer science principles and techniques. Students will work individually or in teams to design, develop, and present a substantial software project, gaining exposure to real-life project scenarios. It also covers project planning, requirements gathering, software design, coding, testing, debugging, documentation, and project management, following industry best practices. Through these projects, students will enhance their problem-solving abilities, gain proficiency in software development methodologies, and strengthen their practical skills in computer science.

Objectives:

- Apply interdisciplinary knowledge to effectively solve real-life problems using acquired skills and concepts.
- Gain hands-on experience in the software development life cycle, encompassing requirements analysis, design, implementation, testing, and deployment.
- Familiarize with global IT industry standards, ethics, and professional practices to thrive in a professional environment.
- Develop teamwork and project management skills through structured collaboration, effective communication, and task delegation.
- Produce professional technical documentation aligning with industry practices, ensuring clarity, accuracy, and usability.
- Acquire time management, resource allocation, and personnel coordination skills for efficient project execution.

Project Types:

a) **Developing a solution for a real-life problem:** In this case, the project focuses on addressing an existing requirement for a computer-based solution that has practical applications. The project should successfully implement the different stages of the system development life cycle. Examples: Secure Online Banking System, Machine Learning-based Disease Diagnosis System, Cloud-based Document Management System.

b) **Innovative Product Development:** These projects involve exploring and developing a computer-based solution with a unique and innovative utility. Examples: Cybersecurity Monitoring and Threat Detection System, Machine Learning-powered Predictive Maintenance System for Industrial Equipment, IoT-based Smart Energy Management System.

c) **Research-Level Project:** These projects involve conducting research and development to explore advanced technologies and solve complex problems. Examples: Deep Learning-based Image Recognition System for Medical Imaging, Cloud Computing Infrastructure Optimization for Big Data Processing, Data Science-driven Predictive Analytics for Sales Forecasting. The methodology and reporting of such projects may vary based on the project supervisor's guidance.

Tools & Technologies:

In the project work, students are granted complete freedom to select platforms, tools, and programming languages without any imposed restrictions. This approach encourages creativity, flexibility, and exploration of various technologies. By prioritizing open-source technologies, students can leverage a vast array of resources and community support. Commonly employed tools include IDEs, version control systems (e.g., Git), programming languages (e.g., Python, Java), databases (e.g., MySQL), and web frameworks (e.g., Django, Ruby on Rails). The evaluation process focuses on the project's content and implementation rather than the specific tools chosen, ensuring a fair assessment of the students' skills and problem-solving abilities.

Project Guide:

Assigning a project guide to each project or group is a mandatory requirement to ensure the successful completion of the project work. The guide plays a crucial role as a mentor and technical expert, providing invaluable support and guidance to students. They are expected to facilitate effective communication and teamwork, review project proposals, assign schedules, and monitor progress on a regular basis. Additionally, guides are expected to offer timely feedback, provide guidance on project planning and implementation strategies, evaluate the quality of work, and promote professionalism and ethical conduct. Their expertise and involvement are essential in helping students navigate challenges, make informed decisions, and achieve their project goals effectively.

Project Team Size: 1 – 2 members

Project Proposal: The project proposal is a mandatory document that serves as a foundation for the project. It helps students define their project idea, receive early evaluation and feedback, establish clear communication with the project guide, and take ownership of the project's successful execution. A formal proposal ensures systematic and professional project planning, fostering critical thinking, effective communication, and project management skills. The proposal provides a roadmap and increases the chances of a successful outcome. Before initiating a project, it is mandatory to submit a project proposal for approval. **The original duly approved project proposal should be attached to the final project report.** The project proposal for UG computer science projects should include the following contents:
- Title
- Introduction
- Objectives: Clearly state the objectives of the project. What specific goals do you aim to achieve?
- Scope
- Methodology
- Tools and Technologies
- Timeline
- Resources
- Expected Outcomes
- References

Project Report:

The Certified Copy of Hard Bound Project Report must adhere to the following guidelines:

- No of Copies: Team Size + 1 (College / Department Copy)
- The project report should include the following
    - Title Page *(Sample attached in Appendix)*
    - Certificate *(Sample attached in Appendix)*
    - Declaration *(Sample attached in Appendix)*
    - Acknowledgement
    - Table of Contents
    - Original Copy of approved Project Proposal
    - Self-attested copy of Plagiarism Report from any open source tool.
    - Chapters / Sections depending upon the type of project
    - List of Tables and/or List of Figures
    - References (IEEE / Springer format)
    - Glossary
    - Appendices (Survey datasheets / Questionnaires, ect)
- Use of LaTeX for documentation purposes should be preferred.
- The text of the report should be set in 12 pt, Times New Roman font, and single-spaced.
- Chapter headings should be centered, written in 20 pt, Times New Roman font, bold, and in all caps.
- These guidelines ensure a standardized format for the project report, promoting clarity and readability.

A PROJECT REPORT

on

<PROJECT NAME>

Submitted by

Mr. XYZ

in partial fulfillment for the award of the degree

of

BACHELOR OF SCIENCE

in

COMPUTER SCIENCE

under the guidance of

<Guide Name>

Department of Computer Science

<<College Logo>>

<<College Name>>

(Sem V / VI)

(202- – 202-)

SAMPLE CERTIFICATE FORMAT

<<College Logo>>

<<College Name>>,

<<College Address>>

Department of Computer Science

CERTIFICATE

This is to certify that Mr./Ms. _____ of **T.Y.B.Sc. (Sem V/VI)** class has satisfactorily completed the Project _____, to be submitted in the partial fulfillment for the award of **Bachelor of Science** in **Computer Science** during the academic year **202- – 202-**.

Date of Submission:

Project Guide   **Head / Incharge,**
                                                           Department Computer Science

College Seal   **Signature of   Examiner**

<u>SAMPLE DECLARATION FORMAT</u>

<u>DECLARATION</u>

I, _____, hereby declare that the project entitled "_____" submitted in the partial fulfillment for the award of **Bachelor of Science** in **Computer Science** during the academic year **202- – 202-** is my original work and the project has not formed the basis for the award of any degree, associateship, fellowship or any other similar titles.

Signature of the Student:

Place:

Date: