COURSE STRUCTURE

For

B.TECH. DEGREE

in

COMPUTER SCIENCE & ENGINEERING

(Applicable from the academic session 2024-2025)

Dr. B. C. Roy Engineering College

An Autonomous Institution

Approved by: All India Council for Technical Education (AICTE)
Affiliated to: Maulana Abul Kalam Azad University of Technology, West Bengal
(Formerly Known as -WBUT)

Jemua Road, Durgapur, West Bengal, India, 713206

The first year course structure (Page 3 and Page 4) is unanimously accepted and approved in the first BoS meeting held in the Department of a) Physics, b) Chemistry, c) Mathematics, d) English, e) Electrical Engineering, f) Electronics and Communication Engineering, g) Computer Science and Engineering, h) Mechanical Engineering.

The BoS of CSE (Computer Science and Engineering) in its first meeting (held in the Department of CSE (Computer Science and Engineering) on 6th November 2024 has unanimously accepted and approved the four year course structure of CSE (Computer Science and Engineering).

Head
Dept. Computer Science & Engg
Dr. B. C. Roy Engineering College
Durgapur

Semester 8								
Sl No	**Course Type**	**Paper Code**	**Paper Name**	**Marks**	**L**	**T**	**P**	**Credit**
Theory								
1	HM	CS801	Project Management & Entrepreneurship	100	3	0	0	3
2	PROJ	CS881	Project III	100	0	0	12 (S*)	6
3	VIVA	CS882	Comprehensive Grand Viva	100	0	0	2 (S*)	1
			Total Theory	300	3	0	14	10
Total Credits								**10**

Course Name: Project Management and Entrepreneurship

Course Code: HM CS801

(Semester- VIII**)**

Category: Major

Course Broad Category: Engineering Science Course

[For Computer Science and Engineering]

1. **Course Prerequisite:**
   - Core business concepts aids topics like market analysis, competitive advantage, and government incentives
   - Basic Mathematics and Statistics.
   - Hands-on training on MS-Project and project management software.

2. **Course Learning Objectives:**
   i. To learn entrepreneurship and its relation to innovation, societal contributions, and risk mitigation strategies
   ii. To learn the idea incubation techniques including market analysis, blue ocean strategy, and demand-supply analysis.
   iii. To identify government incentives (SISI, KVIC, DGFT, SIDBI), funding methods (bootstrapping, crowdfunding, angels)
   iv. To learn about practical application via MS-Project case studies and audits.

3. **Teaching methodology and evaluation system for the course:**
   Teaching methodology – Lectures and Presentations, Interactive Discussions, and Case Studies.
   Evaluation System –
   A. Mid-Term Exam (20 Marks)- Summative Assessment (CIA-1)
   B. Internal Assessment (20 Marks)- Formative Continuous Assessment [Continuous Assessment 1 (CIA-2)]
   C. End-Semester Exam (60 Marks) - Summative Assessment.

4. **Course Content**
   Course Name: Project Management and Entrepreneurship
   Course Code: HM CS801
   Hours per Week: 3L
   Credits: 3

Module	Topics	Lectures
Unit 1	**Introduction:** Meaning and Concept of Entrepreneurship, Innovation and entrepreneurship, Contributions of entrepreneurs to the society, risk-opportunities perspective and mitigation of risks. **Entrepreneurship – An Innovation:** Challenges of Innovation, Steps of Innovation Management, Idea Management System, Divergent v/s Convergent Thinking, Qualities of a prospective Entrepreneur.	4
Unit 2	**Idea Incubation:** Factors determining competitive advantage, Market segment, blue ocean strategy, Industry and Competitor Analysis (market structure, market size, growth potential) Demand-supply analysis. Entrepreneurial. **Motivation:** Design Thinking - Driven Innovation, TRIZ (Theory of Inventive Problem Solving), Achievement motivation theory of entrepreneurship – Theory of McClelland, Harvesting Strategies	6
Unit 3	**Information:** Government incentives for entrepreneurship, Incubation, acceleration. Funding new ventures – bootstrapping, crowd sourcing, angel investors, Government of India's efforts at promoting entrepreneurship and innovation – SISI, KVIC, DGFT, SIDBI, Defense and Railways. **Closing the Window:** Sustaining Competitiveness, Maintaining Competitive Advantage, the Changing Role of the Entrepreneur.	6

Unit 4	**PROJECT MANAGEMENT:** Definitions of Project and Project Management, Issues and Problems in Project Management, Project Life Cycle - Initiation / Conceptualization Phase, Planning Phase, Implementation / Execution Phase, Closure / Termination Phase **Project Feasibility Studies**: Pre-Feasibility and Feasibility Studies, Preparation of Detailed Project Report, Technical Appraisal, Economic/Commercial/Financial Appraisal including Capital Budgeting Process, Social Cost Benefit Analysis	6
Unit 5	**Project Planning:** Importance of Project Planning, Steps of Project Planning, Project Scope, Work Breakdown Structure (WBS) and Organization Breakdown Structure (OBS), Phased Project Planning. **Project Scheduling and Costing** – Gantt chart, CPM and PERT Analysis, Identification of the Critical Path and its Significance, Calculation of Floats and Slacks, Crashing, Time Cost Trade-off Analysis, Project Cost Reduction Methods.	8
Unit 6	**Project Monitoring and Control:** Role of Project Manager, MIS in Project Monitoring, Project Audit. Case Studies with Hands-on Training on MS-Project.	4

5. References:

Text & References Books:

- Innovation and Entrepreneurship by Drucker, P.F.; Harper and Row
- Business, Entrepreneurship and Management: Rao, V.S.P. ; Vikas
- Entrepreneurship: Roy Rajeev; OUP.
- Text Book of Project Management: Gopalkrishnan, P. and Ramamoorthy, V.E.; McMillan
- Project Management for Engineering, Business and Technology: Nicholas, J.M., and Steyn, H.; PHI
- Project Management: The Managerial Process: Gray, C.F., Larson, E.W. and Desai, G.V.; MGH

6. Course Outcomes:

After going through this course the Students will be able to:

Course Outcomes	Details/Statement	Action Verb	Knowledge Level
CO1	Define entrepreneurship, innovation's role, societal contributions, risk mitigation, and qualities of prospective entrepreneurs.	Define	L2
CO2	Analyze challenges in innovation management, idea systems, and competitive advantage factors.	Analyze	L4
CO3	To understand entrepreneurial motivation and support	Understand	L2
CO4	Identify strategies for maintaining competitive advantage and adapting the entrepreneur's role amid changes.	Identify	L5
CO5	To have assess project phases, feasibility studies, planning tools (WBS, OBS), scheduling), and monitoring (MIS, audits)	Understand	L2
CO6	To analyzes hands-on MS-Project training for feasibility, scheduling, and control	Analyze	L4

7. Mapping of course outcomes to module / course content

Module	CO1	CO2	CO3	CO4	CO5	CO6
1	3	-	-	-	-	-
2	-	3	-	-	-	-
3	-	-	3	-	-	-
4	-	-	3	-	-	-
5	-	-	-	3	-	-

8. Mapping of the Course outcomes to Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	-	-	-	-	-	-	-	-	3
CO2	2	3	3	1	-	-	-	-	-	-	3
CO3	3	3	3	2	-	-	-	-	-	-	3
CO4	2	3	3	2	-	-	-	-	-	-	3
CO5	2	3	3	2	-	-	-	-	-	-	3
AVG.	**2.4**	**2.6**	**3**	**1.75**	-	-	-	-	-	-	**3**

9. Mapping to PSO

	PSO1	PSO2	PSO3
CO1	3	1	-
CO2	3	2	2
CO3	3	3	2
CO4	3	3	2
CO5	3	3	-

***** End of Syllabus*** < CS501>**

Course Name: Project III
Code: CS881
(Semester – VIII)
Category: Major
Course Broad Category: Engineering Science Course
[For Computer Science and Engineering]

1. **Course Prerequisite:**
   - Completion of Project II (CS 781)
   - Basic understanding of programming, software development, and project lifecycle
2. **Course Learning Objectives:**
   - Identify research gaps and formulate a clear problem statement.
   - Develop a working prototype or model addressing the identified problem.
   - Prepare a detailed project report covering design, implementation, and evaluation.
   - Apply project management techniques to execute the project effectively within the given timeline.
   - Demonstrate teamwork, communication, and technical presentation skills.
3. **Teaching methodology and evaluation system for the course:**
   Teaching methodology –Presentations, Interactive Discussions and Case Studies.

   Evaluation System –

   A. Mid-Term Exam (20 Marks)- Summative Assessment (CIA-1)
   B. Internal Assessment (20 Marks)- Formative Continuous Assessment [Continuous Assessment 1 (CIA-2)]
   C. End-Semester Exam (60 Marks)- Summative Assessment.
4. **Course Content:**
   Course Name: Introduction to Computer Hardware and Software Course

   Course Code: CS881

   Hours per Week: 0L:0T:1P

   Credits: 6
5. **Course Outcomes:**

Course Outcomes	Details/Statement	Cognitive Level
CO1	Apply advanced programming techniques to identified real-world problems.	**L3**
CO2	Analyze the utility of solutions.	**L4**
CO3	Identify the social, health, safety, and cultural and legal issues associated with the findings.	**L1**
CO4	Demonstrate the findings to the academic, general, and industry communities, and manage any disputes and conflicts within and outside your team.	**L3**

6. Mapping of the Course outcomes to Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	3		3	1	2	3	3	3	3
CO2	2	3		1	3	3	3	3	3	3	3
CO3	2	1		1	3	3	3	3	3	3	3
CO4	2	2		1	3	3	3	3	3	3	3
AVG.	**2**	**2**	**3**	**1**	**3**	**2.5**	**2.75**	**3**	**3**	**3**	**3**

7. Mapping to PSO

COs	PSO1	PSO2	PSO3
CO1	3	3	3
CO2	3	2	2
CO3	1	1	3
CO4	2	2	3

***** End of Syllabus*****