Sant Dnyaneshwar Shikshan Sanstha's
Annasaheb Dange College of Engineering and Technology, Ashta
DEPARTMENT OF AERONAUTICAL ENGINEERING
An Autonomous Institute

Course Details:

Class	S.Y B.Tech., Sem - IV
Course Code and Course Name	**2AEAV201- Introduction to Flight and Avionics**
Prerequisite	NIL
Teaching Scheme: Lecture/Tutorial/Practical	02/00/00
Credits	02
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. Provide students the fundamental knowledge on the Verticals of Aeronautical Engineering – Aerodynamics, Propulsion, and Structures
2. Make student understand the basic components, systems & subsystems of the Aircraft and their functions
3. Describe the different types of avionics subsystems and how they work together

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEAV201_1	Explain the historical developments in the Aeronautical Engineering, Current Trends in the Aviation Industry
2AEAV201_2	Comment & Explain in detail the basic components, systems & subsystems of the Aircraft and their functions
2AEAV2011_3	Comment & Explain in detail the basics of Air Transportation & Airport Operations
2AEAV201_4	Illustrate cockpit and display technologies of civil and fighter airplanes
2AEAV201_5	Interpret the concept of Flight Control Systems from an earlier era to advanced Technologies.

Course Contents:

Unit 1	**Introduction to Flying vehicles**	**05**
History of Aviation(Global & India Perspective), Early Concepts, Wright Brothers Era, First World War Period, Second World War Period, Modern Developments, Classification of Flying Vehicles, Anatomy of (Basic Parts & Their Function), Buoyancy Lift Vehicles(Airships, Aerostats, Hot Air Balloons), Dynamic Lift Vehicles(Aircrafts), Powered Static Lift Vehicles(Helicopters), Reaction Lift Vehicles(Launch & Re-entry Vehicles), Parachutes & Para gliders, Control Surfaces & Their Functions		

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Unit 2	**Aircraft Propulsion System**	**04**
Air Breathing Propulsion - Principle of Operation , Components Piston Engines , Jet Engines, Turbo Jet, Turbo Fan, Turbo Prop, Turbo Shaft, Ramjet, Scramjet, Station Numbering - Flight Envelope - Non-Air Breathing Propulsion, Rocket Propulsion - Types and Classification		
Unit 3	**Aircraft Maintenance and Repair**	**04**
General Aircraft Repairs- A, B, C, D Checks - Starting procedures of Turbo Prop, Turbo Fan and Turbojet Engines- Flight Inspection Procedures - Tools used in Aircraft Maintenance- MRO Sector - Indian MRO Sector - Various job roles involved in the maintenance sector.		
Unit 4	**Air Transportation and Regulations**	**04**
History of Aviation - Regulatory bodies - ICAO, IATA, FAA, EASA, DGCA- Airlines Management in brief - Airport Operations - ARFF - Airport Nomenclature - Air Traffic Control Operations - Airline Ticketing- Job roles involved in the Aviation Sector - Flight Scheduling in brief.		
Unit 5	**Introduction to Avionics and Instrumentation**	**05**
Need for avionics in civil and military aircraft and space systems, integrated avionics and weapon systems, typical avionics subsystems, Introduction to digital computer and memories.Avionics system architecture, data buses – MIL-STD-1553B – ARINC – 420 – ARINC – 629, Control and display technologies: CRT, LED, LCD, EL and plasma panel, Touch flight display – Direct voice input (DVI), Civil and Military Cockpits: MFDS, HUD, MFK, HOTAS		
Unit 6	**Flight control systems**	**04**
Principles of flight controls, Flight control surfaces, Control surface actuation, Flight control linkage systems, Trim and feel, Power control, Mechanical, Direct drive, Electromechanical, Electro-hydrostatic actuation, Auto pilot system, Fly by wire system, fly by optics system, Autonomous taxi, Neural sensing		

Text Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Introduction to Flight	Anderson, J.D	McGraw-Hill	7th	2011
2	Aircraft Systems: Mechanical, Electrical and Avionics Subsystems Integration	Moir, I. and Sea bridge, A	AIAA (American Institute of Aeronautics and Astronautics)	-	2001
3	Avionics Training Systems, Installation and Troubleshooting	Len Buckwalter	Avionics Communications Inc	-	-

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Aerodynamics, Aeronautics and Flight Mechanics	McCormick, B.W.	John Wiley	2nd	1995
2	Gas Turbines and Jet and Rocket Propulsion	Mathur M L and Sharma R P	Standard Publisher	3rd	2014
	Aircraft Structures for Engineering Students	Megson, T.H.G	Elsevier	4th	2007

Assessment Modes:

Sl.No	Method/Technique	CO's					Marks		Weightage
		1	2	3	4	5	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	☑	40	16	40%
2	MSE	☑	☑	☑	☐	☐	30	24	60%
3	ESE	☐	☐	☐	☑	☑	30		

- ISE - In-Semester Examination, MSE - Mid-Semester Examination, ESE - End-Semester Examination
- ABA - Activity Based Assessment

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	1	-	-	-	-	-	-	-	-	-	-	1	-	-
2	2	-	-	-	-	-	-	-	-	-	-	1	-	-
3	2	-	-	-	-	-	-	-	-	-	-	1	-	-
4	3	-	-	-	-	-	-	-	-	1	-	-	-	-
5	3	-	-	-	-	-	-	3	2	1	-		-	-
Avg	2	-	-	-	-	-	-	3	2	1	-	1	-	-

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Course Details:

Class	T.Y B.Tech., Sem - V (Minors in Avionics)
Course Code and Course Name	**2AEAV301 - Aircraft Systems and Instruments**
Prerequisite	2AEAV201 - Introduction to Flight and Avionics
Teaching Scheme: Lecture/Tutorial/Practical	03/00/00
Credits	03
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. To provide students with a theoretical understanding of the various systems and instruments used in aircraft.
2. To develop students' analytical skills in assessing the functionality and integration of aircraft systems and instruments.
3. To familiarize students with the principles of operation and maintenance of aircraft systems through detailed theoretical instruction.

Course Outcomes (CO's):

After successful completion of this course, the student will be able to,

2AEAV301_1	Critically analyze and synthesize the working principles of key aircraft systems using theoretical knowledge and schematic diagrams
2AEAV301_2	Evaluate and compare the components and functionalities of various aircraft instruments with provided examples and information like charts, diagrams, maps, manual e.t.c
2AEAV301_3	Analyze common issues in aircraft systems and propose theoretical solutions with accuracy based on provided scenarios, examples and contents
2AEAV301_4	Interpret and critically assess data from aircraft instruments to evaluate aircraft performance and health with given example datasets and instructional material.
2AEAV301_5	Integrate and apply knowledge of various aircraft systems to discuss their operations and interactions in normal and emergency conditions using case studies and theoretical scenarios

Course Contents:

Unit 1	**Introduction to Aircraft Systems**	**06**
Overview of aircraft systems and their importance, types of aircraft systems (hydraulic, pneumatic, electrical, fuel), basic components and functions of each system, interaction and integration of different aircraft systems.		
Unit 2	**Aircraft Hydraulic and Pneumatic Systems**	**07**

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Principles of hydraulic systems: components, operation, and maintenance, common hydraulic systems in aircraft (landing gear, brakes, flight controls), principles of pneumatic systems: components, operation, and maintenance, common pneumatic systems in aircraft (de-icing, pressurization).		
Unit 3	**Aircraft Fuel Systems**	**06**
Types of aircraft fuel systems and their components, fuel storage, transfer, and management, fuel system design considerations and safety features, fuel system maintenance and troubleshooting.		
Unit 4	**Aircraft Electrical Systems**	**06**
Basics of aircraft electrical systems: AC and DC power, generators, batteries, electrical system architecture and components, power distribution and management, troubleshooting electrical systems.		
Unit 5	**Aircraft Instrumentation**	**07**
Types of aircraft instruments: flight instruments, navigation instruments, engine instruments, principles of operation for key instruments (altimeter, airspeed indicator, artificial horizon), electronic and digital instrument systems (EFIS, glass cockpit), maintenance and calibration of aircraft instruments.		
Unit 6	**Flight Control Systems and Integration**	**07**
Basics of flight control systems: primary and secondary controls, fly-by-wire and automated flight control systems, integration of flight control systems with other aircraft systems, emergency procedures and system redundancy.		

Text Books:

Sl.No	Title	Authors	Publisher	Edition	Year
1	Aircraft Hydraulic Systems: An Introduction to the Analysis of Systems and Components	E. H. J. Pallett	Longman Group United Kingdom	2nd	1992
2	Aircraft Systems: Mechanical, Electrical and Avionics Subsystems Integration	Moir, I. and Sea bridge, A	AIAA	3rd	2011
3	Avionics Training Systems, Installation and Troubleshooting	Len Buckwalter	Avionics Communications Inc	-	-

Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Aerodynamics, Aeronautics and Flight Mechanics	McCormick, B.W.	John Wiley	2nd	1995
2	Aircraft Fuel Systems	Roy Langton	Wiley-Blackwell	2nd	2009
3	Aircraft Structures for Engineering Students	Megson, T.H.G	Elsevier	4th	2007

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Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes					Marks		Weightage
		1	2	3	4	5	Max	Min	
1	ISE : ABA	☑	☑	☑	☑	☑	40	16	40 %
2	MSE	☑	☑	☑	☐	☐	30	24	60 %
3	ESE	☐	☐	☐	☑	☑	30		

- ISE - In-Semester Examination, MSE - Mid-Semester Examination, ESE - End-Semester Examination
- ABA - Activity Based Assessment, TA - Tutorial Assessment, PA - Practical Assessment

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	2	-	-	-	-	2	1	-	1	3	-	1	1	-
2	2	-	-	-	-	-	1	-	3	3	-	1	1	-
3	2	-	-	-	-	-	1	-	3	3	-	1	1	-
4	2	-	-	-	-	2	1	-	3	3	-	1	1	-
5	2	-	-	-	-	2	1	-	3	3	-	1	1	-
Avg	2.0	-	-	-	-	2.0	1.0	-	3.0	3.0	-	1.0	1.0	-

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Course Details:

Class	T.Y B.Tech., Sem - VI
Course Code and Course Name	**2AEAV302 - Aircraft Instrumentation and Control**
Prerequisite	2AEAV201 - Introduction to Flight and Avionics 2AEAV301 - Aircraft Systems and Instruments
Teaching Scheme: Lecture/Tutorial/Practical	03/00/00
Credits	03
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. Build on the foundational knowledge of aircraft systems and instrumentation to explore advanced concepts and applications.
2. Develop practical problem-solving skills related to control systems and fault diagnostics in aircraft.
3. Understand the integration of modern avionics and automated control technologies in advanced aircraft systems.
4. Analyze and simulate control system responses for improving flight performance and safety.

Course Outcomes (CO's): After successful completion of this course, the student will be able to,

2AEAV302_1	Interpret the operation, functions, and limitations of various aircraft instrumentation systems.
2AEAV302_2	Examine the instrument systems to address practical problems in the design and operation of instruments subjected to layout procedures.
2AEAV302_3	Choose the appropriate displays and methods to group the instruments in the aircraft.
2AEAV302_4	Interpret sensor data and classify different aircraft control systems based on their functionality, design, and application in modern aviation.
2AEAV302_5	Prepare improvements and solutions to evaluate the performance, errors, and operational challenges of gyroscopic instruments, flight displays, and control systems using AI & ML.

Course Contents:

Unit 1	**Advanced Principles of Aircraft Instrumentation**	**6**
Review of fundamental concepts, advanced instrumentation principles for data acquisition and processing, challenges in modern aircraft instrumentation: accuracy, redundancy, and integration		
Unit 2	**Flight Control System Dynamics**	**7**
Dynamics of primary and secondary flight control systems, fly-by-wire systems: working principles, advantages, and challenges, autopilot systems: modes, response tuning, and operational challenges.		

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Unit 3	**Fault Diagnostics and Redundancy in Instrumentation Systems**	**7**
Common faults in aircraft instrumentation and control systems, troubleshooting strategies and redundancy for critical systems, maintenance and calibration techniques for digital instruments.		
Unit 4	**Advanced Navigation and Communication Systems**	**7**
Satellite-based navigation systems: GPS, GLONASS, and Galileo, inertial navigation systems (INS): principles and applications, integration of navigation and communication systems in aircraft, air traffic communication systems: ADS-B and CPDLC, challenges in modern navigation and communication systems.		
Unit 5	**Practical Aircraft Control System Concepts**	**6**
Basics of control system tuning: proportional, integral, and derivative (PID) controllers, simple simulations of control system responses, introduction to actuator dynamics and their effect on control, the role of feedback in maintaining stability,		
Unit 6	**Emerging Trends in Aircraft Instrumentation and Control**	**6**
Role of artificial intelligence and machine learning in fault detection, predictive maintenance using IoT-enabled sensors, case studies of next-generation systems in commercial and military aircraft.		

Text Books:

Sl.No	Title	Authors	Publisher	Edition	Year
1	Aircraft Hydraulic Systems: An Introduction to the Analysis of Systems and Components	E. H. J. Pallett	Longman Group United Kingdom	2nd	1992
2	Aircraft Systems: Mechanical, Electrical and Avionics Subsystems Integration	Moir, I. and Sea bridge, A	AIAA (American Institute of Aeronautics and Astronautics)	3rd	2011
3	Avionics Training Systems, Installation and Troubleshooting	Len Buckwalter	Avionics Communications Inc	-	-

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
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2	Aircraft Fuel Systems	Roy Langton	Wiley-Blackwell	2nd	2009
3	Aircraft Structures for Engineering Students	Megson, T.H.G	Elsevier	4th	2007

Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes					Marks		Weightage
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3	ESE	☑	☐	☐	☑	☑	30		

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	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	3	-	2	2	-	-	-	-	-	1	-	-	-	-
2	2	3	2	2	1	-	-	-	-	1	-	-	1	-
3	2	-	2	-	2	-	-	-	-	-	-	-	-	-
4	2	2	3	3	2	-	-	-	-	1	-	-	1	-
5	2	3	3	2	3	-	-	-	-	1	-	-	-	1
Avg	**2**	**3**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**1**

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Course Details:

Class	B.Tech., Sem - VII
Course Code and Course Name	**2AEAV401 - Avionics Design and Maintenance**
Prerequisite	2AEPC213 - Airbreathing Propulsion
Teaching Scheme: Lecture/Tutorial/Practical	03/00/00
Credits	03
Evaluation Scheme : ISE/MSE/ESE	40/30/30

Course Objectives:

1. To provide students with a detailed understanding of the principles, components, and design processes of avionics systems used in modern aircraft.
2. To equip students with the skills to troubleshoot, diagnose, and maintain avionics systems to ensure optimal performance and compliance with industry standards.
3. To develop students' ability to analyze and design avionics systems by incorporating technological advancements, adhering to regulatory requirements, and addressing operational constraints.

Course Outcomes (CO's): After successful completion of this course, the student will be able to,

2AEAV401_1	Apply the fundamental principles of avionics systems to analyze and resolve technical challenges in navigation, communication, and flight control systems.
2AEAV401_2	Implement standard troubleshooting techniques to identify and rectify faults in avionics components, ensuring proper functionality in operational settings.
2AEAV401_3	Use appropriate tools and methodologies to perform scheduled maintenance on avionics systems while adhering to industry guidelines and safety standards.
2AEAV401_4	Interpret avionics system diagrams and technical manuals to execute installation and repair tasks accurately adhering to to maintenance practices
2AEAV401_5	Integrate emerging avionics technologies into existing systems by applying compatibility and performance analysis techniques ensuring alignment with existing system requirements

Course Contents:

Unit 1	**Introduction to Avionics Systems**	**7**
Evolution of avionics, components of avionics systems, classification of avionics systems, importance of avionics in modern aircraft, avionics system architecture.		
Unit 2	**Navigation and Communication Systems**	**7**
Principles of navigation systems, GPS and GNSS technologies, VOR and ILS systems, principles of communication systems, HF, VHF, and SATCOM		
Unit 3	**Power and Data Management in Avionics Systems**	**7**

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Power distribution systems in avionics, power converters and inverters, redundancy and fail-safe mechanisms, data buses in avionics (ARINC 429, MIL-STD-1553), integration of power and data systems, fault-tolerant system design.		
Unit 4	**Avionics Maintenance Practices**	**7**
Maintenance procedures for avionics systems, fault diagnosis and troubleshooting techniques, avionics testing equipment, and certification standards for maintenance.		
Unit 5	**Avionics System Design and Integration**	**7**
Design considerations for avionics systems, integration of avionics subsystems, signal processing in avionics, EMI/EMC considerations, and software in avionics.		
Unit 6	**Emerging Trends in Avionics**	**5+2**
Artificial intelligence and machine learning in avionics, advancements in autonomous flight systems, augmented and virtual reality in avionics, next-generation communication systems.		

Text Books:

Sl.No	Title	Authors	Publisher	Edition	Year
1	Introduction to Avionics Systems	Collinson, R.P.G.	Springer	3rd Edition	2011
2	Principles of Avionics	Spitzer, C.R.	Avionics Communications Inc.	6th Edition	2014
3	Avionics: Development and Implementation	Spitzer, C.R.	CRC Press	2nd Edition	2006
4	Aircraft Systems: Mechanical, Electrical, and Avionics Subsystems Integration	Moir, I., & Seabridge, A.	Wiley	3rd Edition	2011
5	Digital Avionics Handbook	Cary R. Spitzer (Editor)	CRC Press	3rd Edition	2014
6	Logistics Management and Strategy: Competing through the Supply Chain	Harrison, A., & Van Hoek, R.	Pearson	5th Edition	2014

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Reference Books:

Sl.No	Title	Author	Publisher	Edition	Year
1	Aircraft Electrical and Electronic Systems	Turner, M., & Wass, T.	Routledge	2nd Edition	2018
2	Avionics Navigation Systems	Kayton, M., & Fried, W.R.	Wiley	2nd Edition	1997
3	Understanding Avionics	Helfrick, A.D.	Prentice Hall	4th Edition	2007
4	Modern Aviation Electronics	Helfrick, A.D.	Prentice Hall	2nd Edition	1994
5	Aircraft Digital Electronic and Computer Systems	Jeppesen	Jeppesen Sanderson	1st Edition	2007
6	Advanced Avionics Handbook	FAA (Federal Aviation Administration)	FAA Publications	1st Edition	2009

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Assessment Modes:

Sl. No	Method/ Technique	Course Outcomes						Marks		Weightage
		1	2	3	4	5	6	Max	Min	
1	ISE : ABA	☑	☑	☐	☐	☐	☐	20	16	40 %
2	ISE : PA	☐	☐	☐	☐	☐	☐	50	20	
3	MSE	☑	☑	☑	☐	☐	☐	30	24	60 %
4	ESE	☐	☐	☑	☑	☑	☐	30		

- ISE - In-Semester Examination, MSE - Mid-Semester Examination, ESE - End-Semester Examination
- ABA - Activity Based Assessment, PA - Practical Assessment

CO's - PO's & PSO's Mapping: (Low - 1, Medium - 2, High -3, No Correlation - "-")

CO's	PO's												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1	1	–	–	–	1	–	–	–	1	2	–	–	–	–
2	1	–	–	–	1	–	–	–	1	2	–	–	–	–
3	1	–	–	–	1	–	–	–	1	2	–	–	–	–
4	1	–	–	–	1	–	–	–	1	2	–	–	–	–
5	1	–	–	–	1	–	–	–	1	2	–	–	–	–
Avg	**1**	–	–	–	**1**	–	–	–	**1**	**2**	–	–	–	–

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Minor Stream in Avionics

Course Details:

Class	B.Tech., Sem - V to VIII
Course Code and Course Name	**2AEAV402 - Capstone Project on Avionics**
Prerequisite	2AEAV201, 2AEAV301, 2AEAV302, and 2AEAV401
Teaching Scheme: Lecture/Tutorial/Practical	00/00/06
Credits	03
Evaluation Scheme : ISE/ESE	50/50

Course Objectives:

1. Developing practical skills in designing, simulating, or testing avionics systems.
2. Applying theoretical knowledge from prerequisite courses to solve real-world avionics problems.
3. Enhancing project management and communication skills in the context of avionics development.

Course Outcomes (CO's): After successful completion of this course, the student will be able to,

2AEAV402_1	Design and simulate the functionality of an avionics subsystem or system.
2AEAV402_2	Develop test plans and conduct simulations or hardware tests to evaluate avionics system performance.
2AEAV402_3	Integrate various avionics subsystems (e.g., flight instruments, communication systems, navigation systems) into a cohesive system.
2AEAV402_4	Analyze and troubleshoot avionics system malfunctions using diagnostic tools and techniques.
2AEAV402_5	Communicate avionics concepts and project findings effectively to technical and non-technical audiences, both verbally and in writing.

Course Contents:

- **Project Scope**: The minor project may encompass various types of work, including design projects, experimental studies, or computer simulations, focusing on topics relevant to Minor Stream.
- **Project Components**: The minor project should involve several key elements, such as identifying a problem, conducting a literature review, formulating the problem, designing components or systems, and utilizing modern tools and techniques relevant to the project.
- **Project Synopsis Submission**: A synopsis of the selected project must be submitted, which should clearly outline the project's scope, objectives, methodology, approach, and tools to be employed. This includes any software or resources anticipated to be used, as well as expected results and a timeline for completion.

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- **Report Distribution**: The project group is required to submit one copy of the synopsis report to their project guide, while retaining another copy for their own records.
- **Project Duration**: The minor project work is structured to be completed over four semesters (V to VIII), with the same group continuing to work under the guidance of the assigned project guide throughout this period.
- **Group Formation**: Students will work in groups of 2 to 4 members to complete the minor project. However, individual students may also choose to undertake the project independently. In no case should the student group size exceed 5 members. The ideal group size would be a maximum of 4 students.
- **Project Timeline and Assessments:**

Semester	Work to be completed	Assessment	Marks
V	Literature Review (Review Papers) and Synopsis Presentation	Review-I	50
VI	Methodology / Design / Tools	Review-II	50
VII	Complete Setup/Fabrication/Assembly	Review-III	50
VIII	Testing, Report Writing, Paper Publication	Review-IV	50

- **Submission Requirements:**
  - ✓ **Project Work Diary**: Maintained by the group and countersigned by the guide weekly, reflecting the efforts taken for project selection, literature review, and day-to-day activities.
  - ✓ **Synopsis Report**: Submitted in a prescribed format, including the project title, student names, guide name, relevance, literature review, proposed work, methodology, expected outcomes, plan of proposed work, detailed budget estimate, and references. The synopsis should consist of a minimum of 10 review papers from referred Journals and be signed by each student, approved by the guide, and endorsed by the Head of the Department.
  - ✓ **Minor Project Report**: A typed report of Min 30 to Max 50 pages, following a standardized format for page size, margins, font, and spacing (refer Guidelines for Main Project). The report should include references in a specific format for review papers and books.
  - ✓ **Presentation Requirement:** Students must make presentations in front of faculty members and review panel members during the scheduled reviews in each semester. They are required to submit soft copies of their Presentation PowerPoint (PPT) to the project guide.
  - ✓ **Documentation:** The project guide or Minor Project Coordinator must maintain a separate file for each group, which should include:
    - o Approved Synopsis
    - o Review Schedule
    - o Presentation Copies
    - o Assessment marks for each review, along with the corresponding rubrics
  - ✓ **Assessment**: The term work shall be assessed by the project guide based on the presentation of the completed work and the submitted report at the end of each semester.
- **Work Diary Maintenance for Project Groups**

  The project group is required to maintain a work diary throughout the project's duration. The work diary should include the following entries:

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Member Secretary - BOS **Chairman-BOS** **Member Secretary - AC** **Chairman-AC**

(a) Books Referred: List all books consulted during the project.

(b) Company Visited: Document any companies visited for research or collaboration.

(c) Person Contacted: Record the names and details of individuals contacted for information or assistance.

(d) Papers Referred: Include references to any research papers or articles consulted.

(e) Creative Thinking: Note any ideas, brainstorming sessions, or innovative thoughts that emerged during the project.

Assessment

- The work diary, along with the final project report, will be assessed during the End-Semester Examination (ESE) at the end of VIII Semester.

  Proper maintenance and thorough documentation in the work diary will contribute to the overall evaluation of the project.