RV College of Engineering®

Meeting with HoDs, Deans & Associate Deans
Monday, 30th Sept 2024

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Guidelines for

EXPERIENTIAL LEARNING for II Year B.E. Programs

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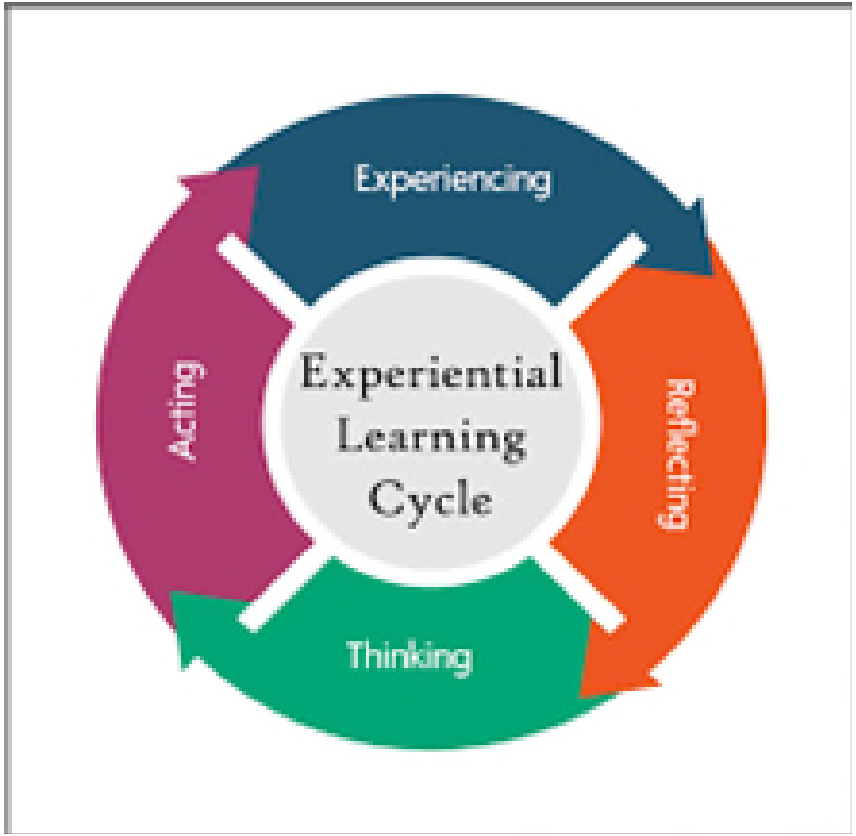
Experiential learning- Advantages

- **Enhanced Retention**: Learning through experience helps solidify knowledge, making remembering and applying concepts easier.
- **Active Engagement**: Participants are actively involved in the learning process, leading to increased motivation and interest.

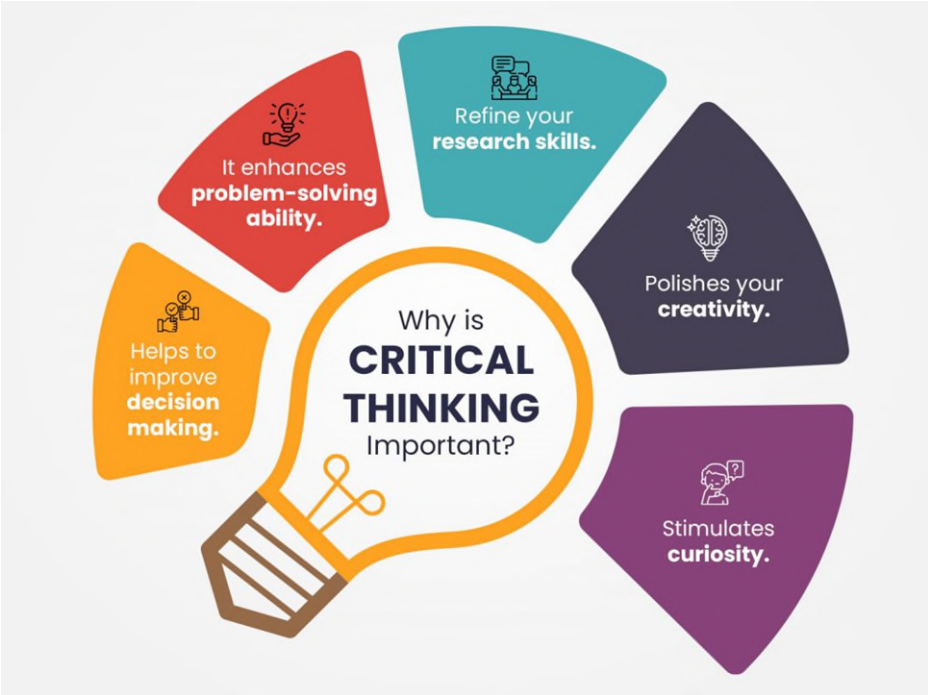


Experiential learning- Advantages

Critical Thinking: Experiential learning encourages problem-solving and critical thinking skills as learners navigate real-world challenges.

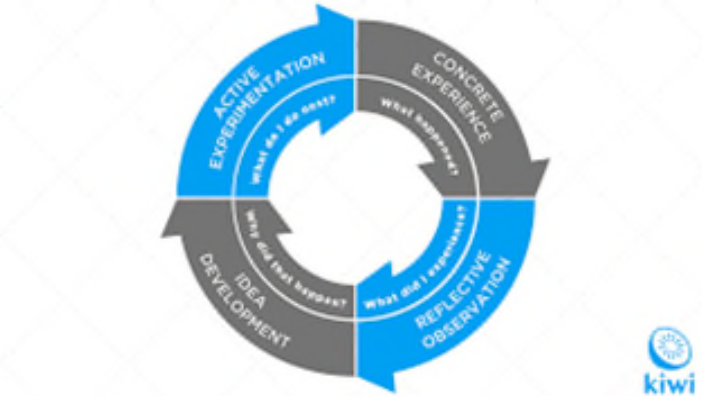
Practical Application: Learners can immediately apply theoretical knowledge to real situations, bridging the gap between theory and practice.

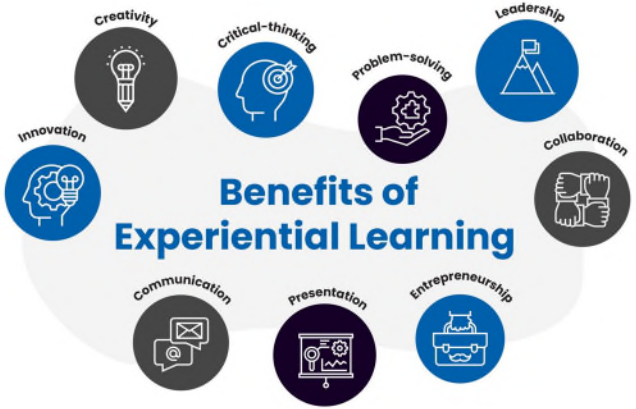
Development of Soft Skills: Skills such as teamwork, communication, and leadership are often enhanced through collaborative experiences.



Experiential learning- Advantages

- **Personal Growth**: Engaging in hands-on activities fosters self-awareness and personal development, encouraging learners to reflect on their experiences.
- **Adaptability:** Learners become more adaptable and resilient as they face and overcome unexpected challenges.
- **Diverse Learning Styles**: Experiential learning accommodates various learning styles, making it inclusive and effective for many learners.
- **Feedback Opportunities**: Real-time feedback during experiential activities helps learners understand their strengths and areas for improvement.





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II Year Clusters

CS	EC	ME	CV
AI	EC	AS	CV
CD	EE	IM	BT
CS	EI	ME	CH
CY	ET		
IS			

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Themes for Computer Science Cluster

1. Artificial Intelligence
2. Internet of things
3. AR, VR & MR
4. Quantum security
5. Edge Computing
6. Ethical AI
7. Cloud Security
8. Programming Mechanics(coding for App development)
9. AI for Social Good
10. AI in Education
11. Data Science and Analytics

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Themes for Electronics Cluster

1. Semi-Conductors Engineering
2. Cyber Physical systems
3. Drone Technology
4. Biomedical Instrumentation
5. Bionics and Prosthetics
6. Renewable Energy solutions
7. Mechatronics & Industrial Internet of Things
8. Power Systems Engineering
9. Electric Vehicle technology
10. Embedded systems and IoT
11. AI in Electronics
12. 5G and Wireless Communications

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Themes for Mechanical Cluster

1. Smart Manufacturing
2. Digital Metrology
3. Ergonomics in Automation
4. Advanced Materials
5. Energy Systems
6. Autonomous Vehicles
7. Thermodynamic Simulations
8. AI for Mechanical Systems
9. Supply Chain Management

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Themes for Civil Cluster

1. Environmental Engineering and Sustainability.
2. Pollution control, Waste management, and Bioremediation.
3. Urban planning and development including digital twins.
4. Smart Materials and Structures.
5. Innovative solutions for water and waste water purification, reuse, and recycling.
6. Eco-friendly materials and waste reduction strategies.
7. Technologies to mitigate climate change impacts.
8. Bioinformatics
9. Biomaterials and Computational Biology.

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II Year BE Programs of 2022 Scheme

Courses for EL – SL. No. 1,3,4,5

Sample scheme: Aerospace Engineering [AS]					
Slo. No.	**BoS**	**Course Code**	**Course Title**	**Credits**	**Category**
1	MA	**MA231TB**	Statistics, Laplace Transform and Numerical Methods	**4**	Theory
2	BT/CV/ME	**XX232TX**	Basket Courses - **Group A**	**3**	Theory
3	AS	**AS233AI**	Thermodynamics (Theory & Practice)	**4**	Theory & Lab
4	AS	**AS234AI**	Mechanics of Fluids (Theory & Practice)	**4**	Theory & Lab
5	AS	**AS235AT**	Structural Mechanics	**4**	Theory
6	HS	**HS237LX**	Ability Enhancement Courses - **Group C**	**2**	LAB
7	**CS**	**CS139AT**	**Bridge Course: C Programming**	**Audit**	**Audit Course**

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II Year BE Programs of 2022 Scheme

Courses for EL – SL. No. 1,3,4,5

Sample Scheme: Computer Science & Engineering [CS]					
Slo. No.	**BoS**	**Course Code**	**Course Title**	**Credits**	**Category**
1	MA	**MA231TC**	Linear Algebra and Probability Theory	**4**	Thoery
2	BT/CV/ME	**XX232TX**	Basket Courses - **Group A**	**3**	Thoery
3	IS	**IS233AI**	Data Structure and Applications (Common to CS, IS, CD & CY) (Theory & Practice)	**4**	Theory & Lab
4	CS	**CS234AI**	Applied Digital Logic Design and Computer Organisation (Common to CS, CD & CY) (Theory & Practice)	**4**	Theory & Lab
5	CS	**CS235AI**	Operating Systems (Common to CS, IS, CD & CY) (Theory & Practice)	**4**	Theory & Lab
6	CS	**CS237DL**	Design Thinking Lab	**2**	LAB
7	**CS**	**CS139AT**	**Bridge Course: C Programming**	**Audit**	**Audit Course**

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Rules for team formation

- The team must consist of 4 to 5 members.
- The team should consist of students belonging to different programs from the respective clusters.
- In a team, not more than 2 students can be from the same program.
- In a team, at least one person should belong to a different program in the same cluster.
- Example - If there are 2 members from ME, 2 from AE, the other team member must compulsorily belong to IEM branch
- Group Pattern: 2+2, 2+1+1, 1+1+1+1, 2+2+1, 2+1+1+1, 1+1+1+1+1


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Guidelines for
EXPERIENTIAL LEARNING
for III Year B.E. Programs

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Clusters for III Year B.E. Programs

CS

- AI
- CD
- CS
- CY
- IS

EC

- EC
- EE
- EI
- ET

ME

- AS
- BT
- CH
- CV
- IM
- ME

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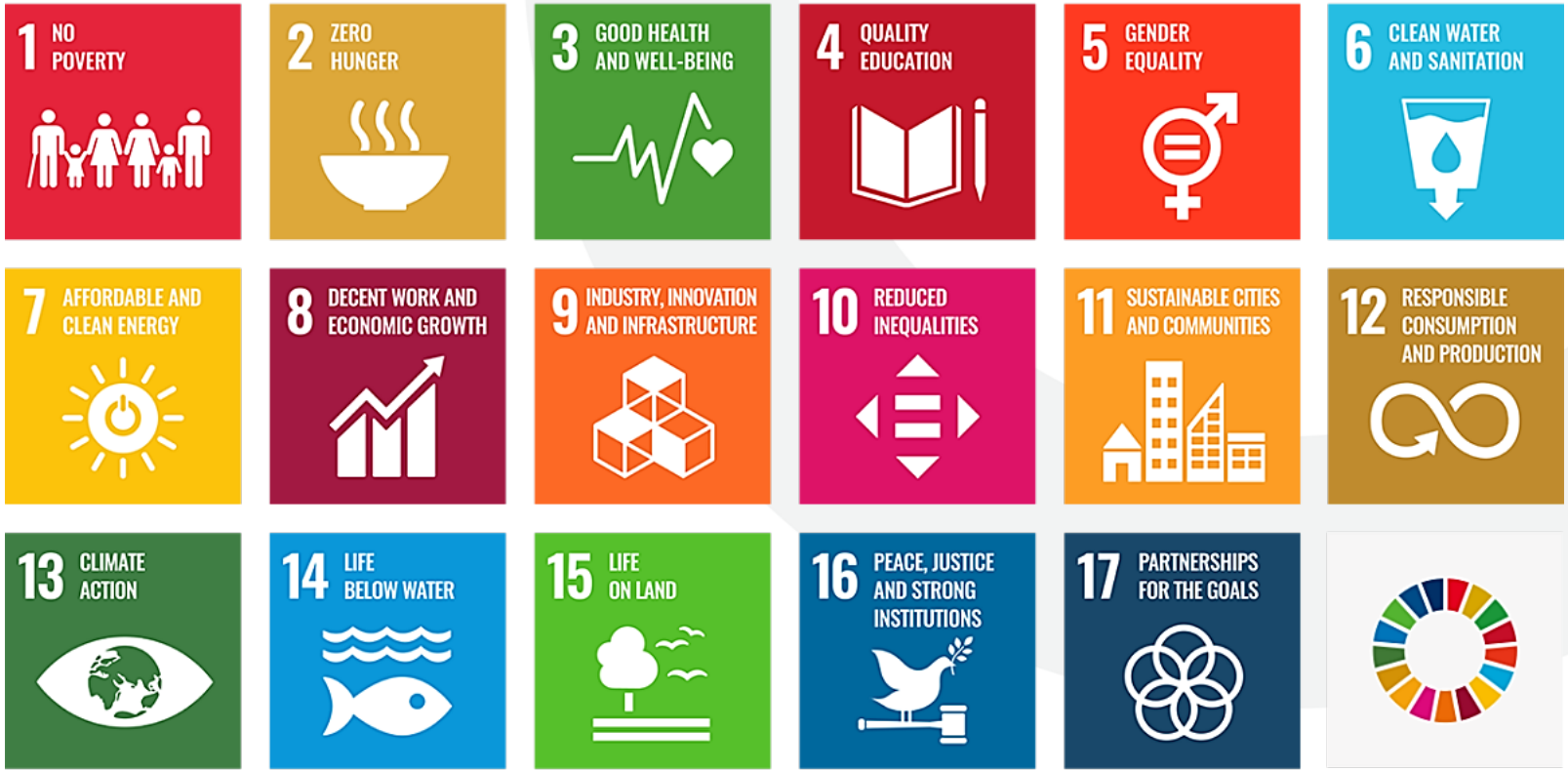
SUSTAINABLE DEVELOPMENT GOALS



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SDG THEMES FOR CLUSTERS

CS

- SDG 4 Quality Education
- SDG 9 Industry, Innovation and Infrastructure
- SDG 11 Sustainable Cities and Communities
- SDG 13 Climate Action

EC

- SDG 4 Quality Education
- SDG 7 Affordable and Clean Energy
- SDG 11 Sustainable Cities and Communities
- SDG 13 Climate Action

ME

- SDG 4 Quality Education
- SDG 11 Sustainable Cities and Communities
- SDG 6 Clean water and sanitation
- SDG 7 Affordable and Clean Energy
- SDG 9 Industry, Innovation and Infrastructure

III Year BE Programs of 2022 Scheme

Courses for EL Sl.No. 2,3 & 4

Sample Scheme Aerospace Engineering [AS]					
FIFTH SEMESTER					
Sl. No.	**BoS**	**Course Code**	**Course Title**	**Credits**	**Category**
1	HS	HS251TA	Principles of Management and Economics	3	Theory
2	AS	AS252IA	Aerodynamics & Flight Performance	4	Theory + Lab
3	AS	AS253IA	Finite Element Methods	4	Theory + Lab
4	AS	AS254TA	Aircraft Systems & Instrumentation	4	Theory + Lab
5	AS	AS255TBX	Professional Core Elective-I (Group-B)	3	Theory
6	AS	AS256TCX	Professional Core Elective-II (Group C)	2	**NPTEL**

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Themes from Sustainable Development Goals (SDGs)_

- Sustainable Development Goals (SDGs) are 17 interconnected global objectives set by the United Nations to address some of the world's most pressing challenges.
- These goals offer students valuable opportunities for real-world problem-solving through experiential learning.
- By incorporating SDGs into education, students are encouraged to engage in critical thinking, collaboration, and innovative approaches.
- For example, they might develop cutting-edge solutions for waste management (SDG 12), directly contributing to the achievement of these goals.

Themes from Sustainable Development Goals (SDGs)

- SDGs challenge students to think creatively and find novel solutions to complex problems, thereby stimulating their entrepreneurial spirit.
- Engaging in SDG-related projects not only enhances their problem-solving skills but also makes them more attractive to employers who value sustainability and social responsibility.
- Integration of SDGs into educational projects helps students connect academic learning with real-world impact, preparing them for future careers


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