



# Federation of Myanmar Engineering Societies

## The Role of Women Engineers in Modern Infrastructure and Technology Development

**Engr. Yin Yin Mya (PE –Power, BS, ACPE-Electrical)  
(JGS-Fed.MES)  
Associate Professor  
Department of Electrical Power Engineering  
West Yangon Technological University**

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# INTRODUCTION

- ❖ Engineering plays a critical role in national development and technological advancement.
- ❖ Women engineers are increasingly contributing across various engineering disciplines.
- ❖ Their participation supports innovation, infrastructure growth, and sustainable development.
- ❖ Women contribute to designing, planning, managing, and implementing engineering projects.
- ❖ Modern infrastructure and technology require diversity, creativity, and multidisciplinary skills.
- ❖ In Myanmar, women engineers continue to expand their roles in power, construction, manufacturing, information technology, and environmental sectors.
- ❖ Empowering women in engineering helps create a stronger and more inclusive future.

"Women engineers are not only participants in development but also leaders shaping the future of technology and infrastructure."

# Objectives

- ❖ Understand women's role in engineering
- ❖ Explore infrastructure and technology sectors
- ❖ Learn professional requirements
- ❖ Discuss regulations and ethics
- ❖ Encourage women participation



# Importance of Women in Engineering



A woman construction engineer is working on a laptop, talking with her colleague on the construction site



Female Energy Station Electrician Engineer



Young woman engineer working on robotics project.



SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

- Transforming the structure of economies so they are inclusive and sustainable depends on the right infrastructure, industries and innovations.
- Research and innovation drive the knowledge economy, and are the backbone of future jobs, yet women globally hold less than a third of research positions.



Asian female electrical engineer working in the field in the evening

Innovation in the automotive industry,  
Female Engineer in the Laboratory of the  
Institute for Experimentation and Learning  
of Robot Technology.





## Key Points

- ❖ Diversity improves innovation
- ❖ Women contribute technical and leadership skills
- ❖ Engineering supports economic growth
- ❖ Equal participation strengthens society

Female civil engineer or architect with a yellow helmet, standing with project drafts in hand





## Technologies in Inclusive Education: Solution or Challenge

# HOW TO SUPPORT WOMEN IN LEADERSHIP

— AND DRIVE INNOVATION AND GROWTH —



- ❖ Empower your organization with our tailored training and development solutions. Elevate [Women In Leadership](#), drive innovation, and foster growth for long-term success.

1. Enable Women To Lead And Undertake Decision-making Roles
2. More Female Employment Opportunities
3. Invest financially and mentally in the ideas of female entrepreneurs
4. Taking Steps To Combat Unpaid Labour
5. Personally And Professionally Providing Guidance And Training To Women

## FIVE BEST WAYS TO EMPOWER WOMEN LEADERS

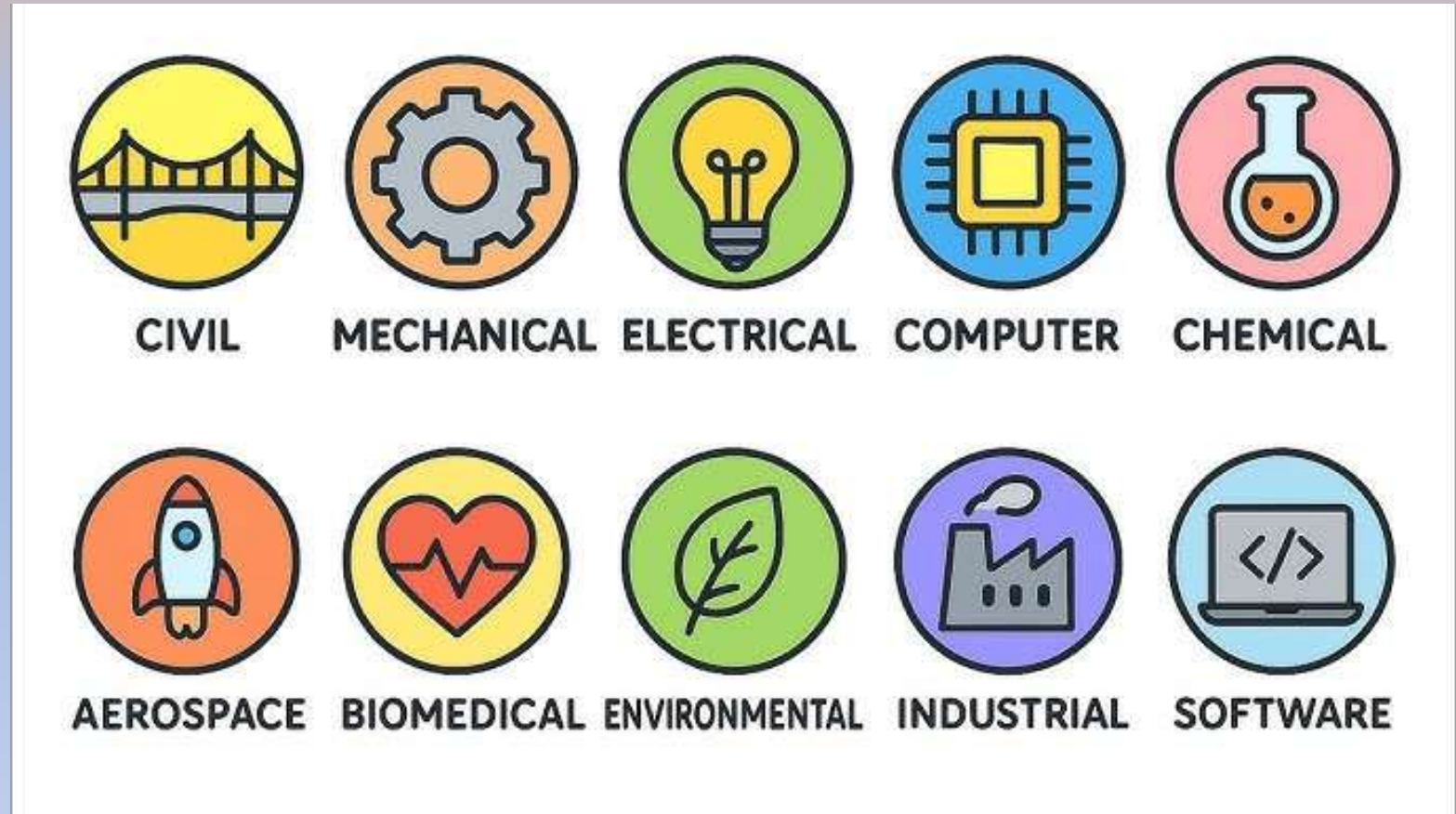


# OVERVIEW OF ENGINEERING FIELDS

## Major Engineering Disciplines

### ❖ Branches

- Civil Engineering
- Electrical Power Engineering
- Mechanical Engineering
- Electronic & Communication
- IT & Computer Engineering
- Environmental Engineering
- Chemical Engineering



## Engineering Contributions to Society

### Examples

- Roads and bridges
- Power generation and distribution
- Smart factories
- Renewable energy systems
- Telecommunications







# ROLE OF WOMEN ENGINEERS

## Women Engineers in Infrastructure Development

### ❖ Roles

- Project planning
- Design and drafting
- Site supervision
- Quality control
- Safety management



# Women in Electrical and Energy Sector



Female Engineer Monitors Energy Control System





Women in engineering, solar energy, portrait of a woman worker-engineer manager.

Successful Business Women Inventing Engineering Solutions In Sustainable Offices





Woman Engineer. Renewable Energy Systems Engineering



Only adult engineering beauty woman working and smiling in the business industry technology



Female engineer working near high voltage transformer in electric power station

- ❖ Working in a large power plant led by a female engineer, checking the system and developing the organisation's progress in a good direction for the future, including the global energy export business



# Women in Digital Technology

## Areas

- ❖ Artificial Intelligence
- ❖ Software Engineering
- ❖ Cybersecurity
- ❖ IoT systems
- ❖ Automation



- ❑ Face a persistent gender gap in access, employment, and leadership.
- ❑ Globally, women are less likely to own smartphones and access the internet compared to men.

# Leadership & Project Management

## Skills

- Team leadership
- Communication
- Decision making
- Risk management
- Budget management





**5** GENDER  
EQUALITY



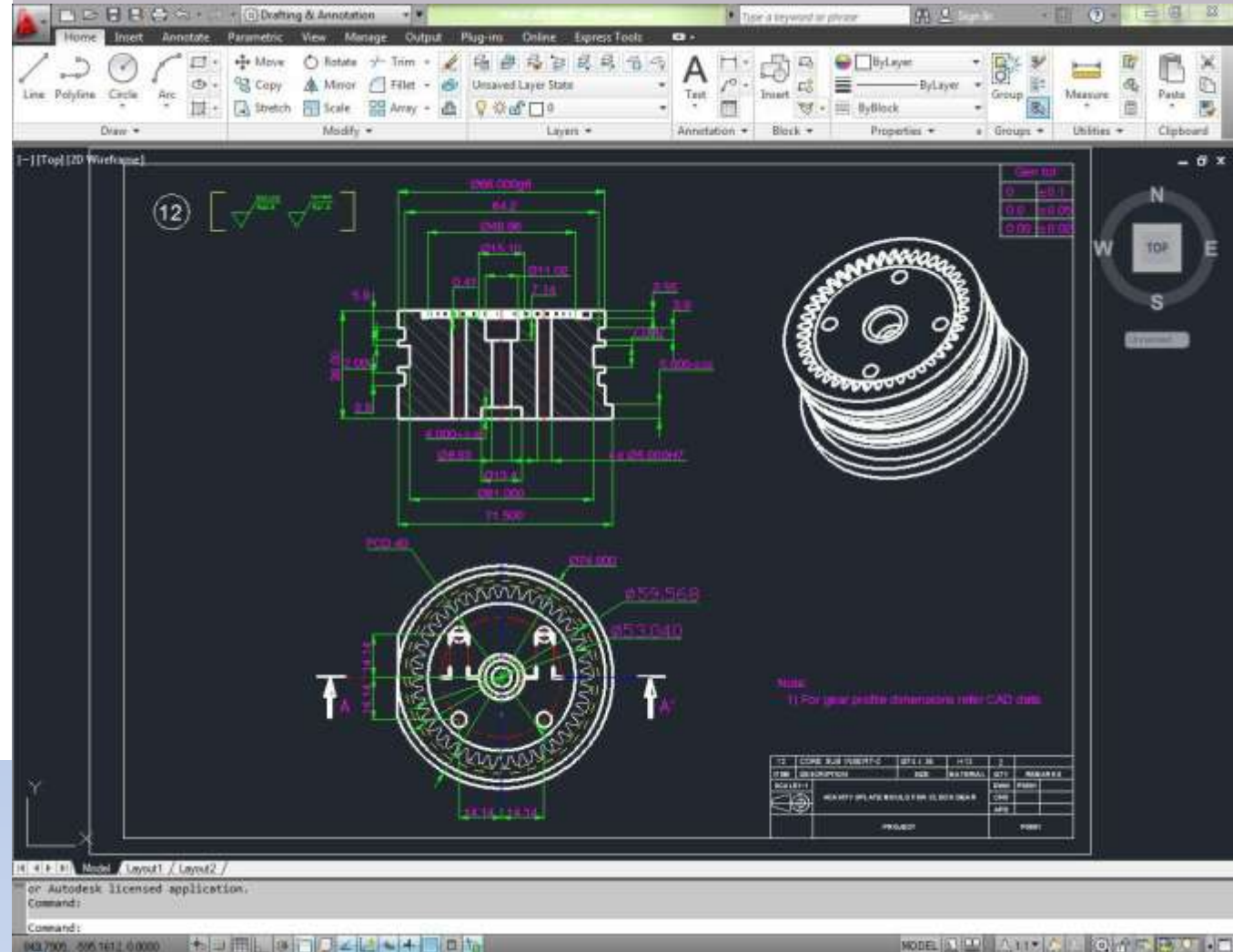
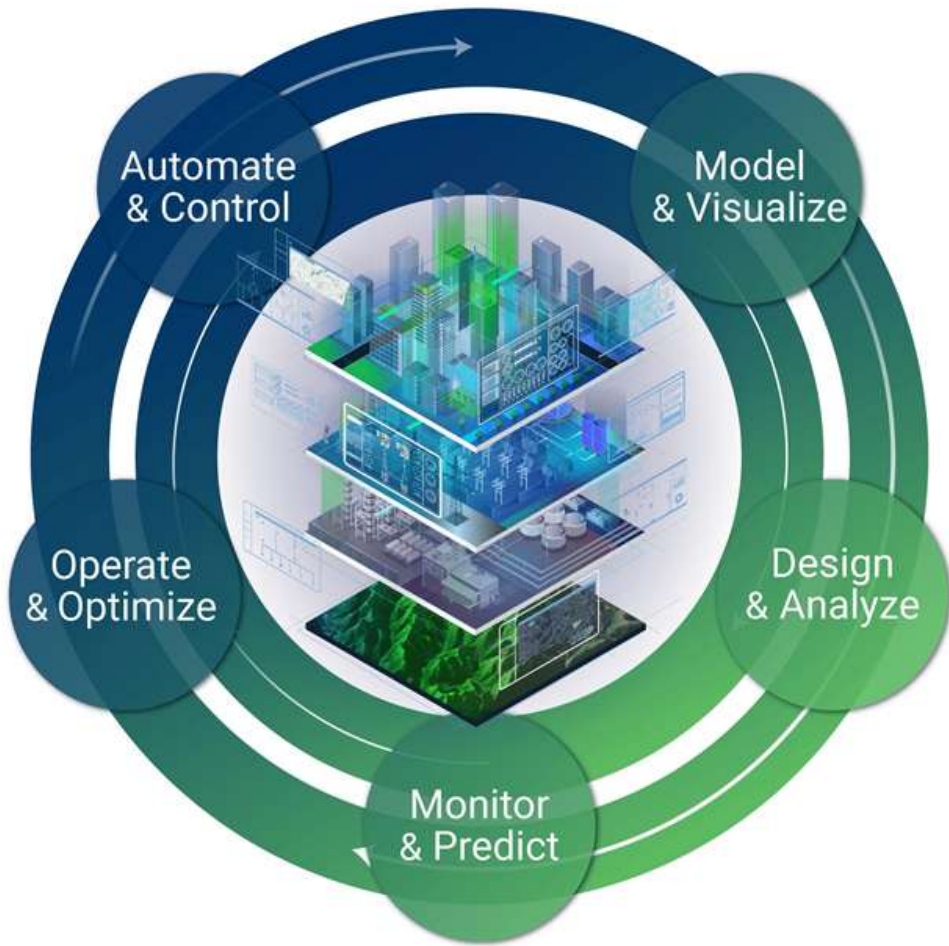
# KNOWLEDGE & TECHNICAL SKILLS REQUIRED

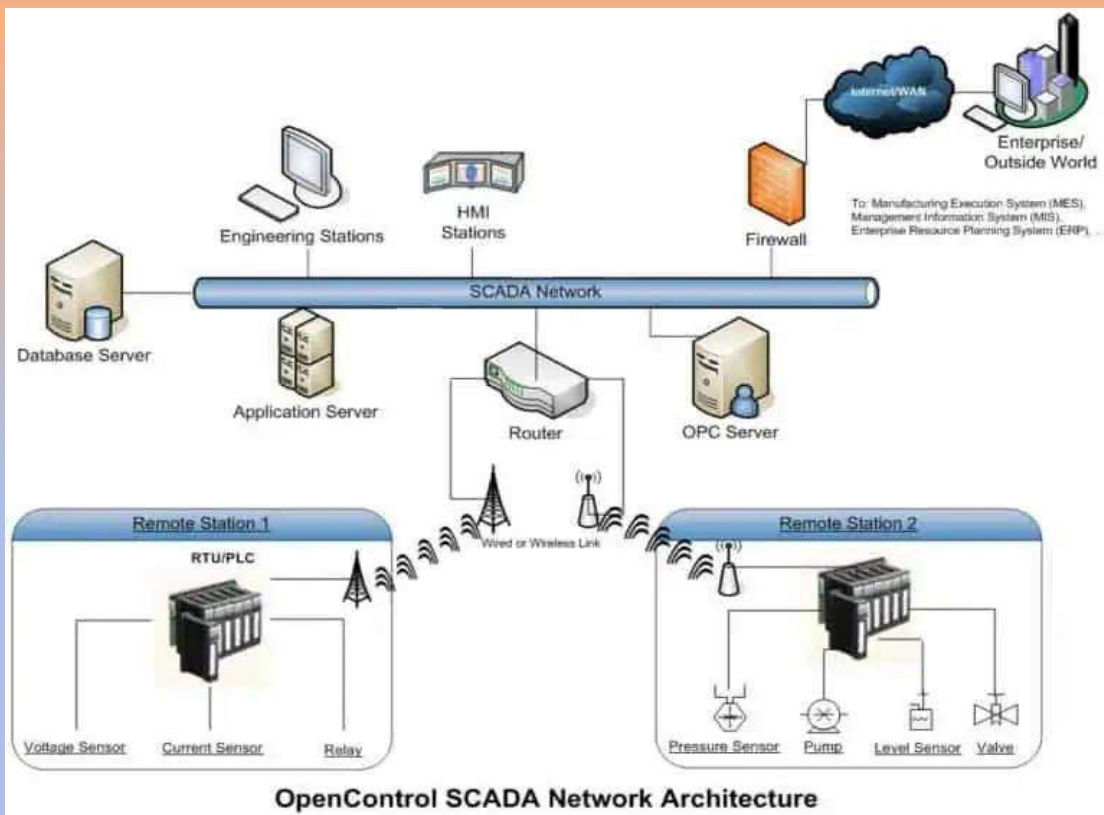
## Engineering Knowledge

- **Technical Fundamentals**
  - ❖ Mathematics
  - ❖ Physics
  - ❖ Circuit theory
  - ❖ Mechanics
  - ❖ Programming basics

## Modern Engineering Software Tools







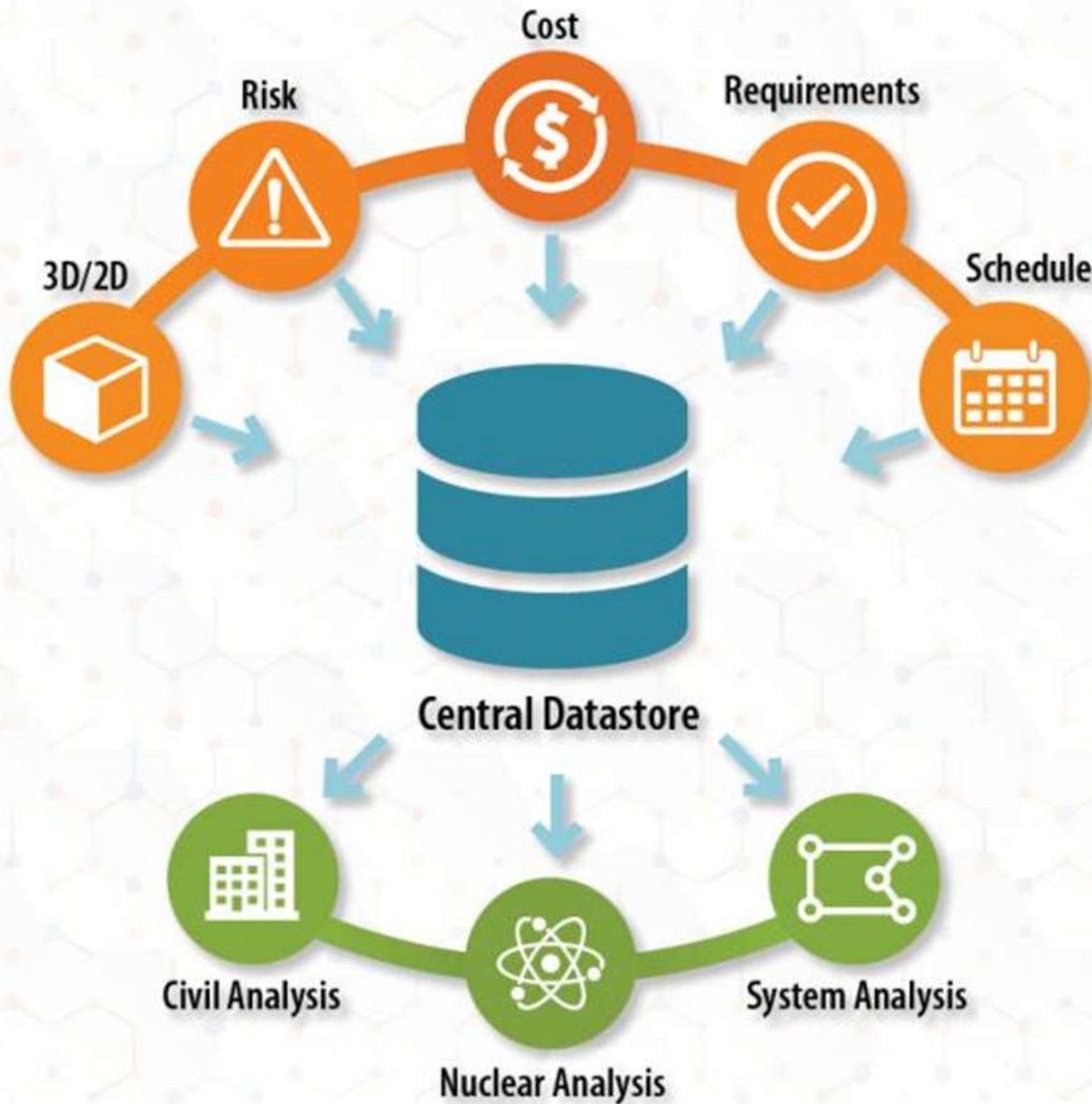
## ❖ Software Examples

- AutoCAD
- ETAP
- MATLAB
- PLC/SCADA
- Revit
- SolidWorks

# MODERN INFRASTRUCTURE DEVELOPMENT

Smart





## Concepts

- ❖ Smart cities
- ❖ Intelligent transport
- ❖ Smart buildings
- ❖ Digital monitoring

## Sustainable Infrastructure

- ❖ Green buildings
- ❖ Energy conservation
- ❖ Environmental protection
- ❖ Climate resilience







## TECHNOLOGY DEVELOPMENT

- ❖ Technology development is transforming modern engineering and infrastructure systems.
- ❖ Women engineers contribute significantly to innovation, automation, and digital transformation.
- ❖ Modern technologies improve efficiency, safety, communication, and sustainability.
- ❖ Engineering technologies support smart cities, renewable energy, transportation, and industrial automation.
- ❖ Advanced tools such as AI, IoT, robotics, and smart grids are widely used in engineering fields.
- ❖ Women engineers play important roles in software development, power systems, telecommunications, and research.
- ❖ Continuous learning and technical skill development are essential in rapidly changing technologies.
- ❖ Technology development creates new opportunities for women engineers in Myanmar and globally.



Engineer women working on AI technology in robotics

## Areas of Technology Development

- Artificial Intelligence (AI)
- Internet of Things (IoT)
- Smart Grid Systems
- Renewable Energy Technology
- Automation & Robotics
- Digital Communication Systems
- Electric Vehicles (EV)
- Industry 4.0 & Smart Manufacturing

# CHALLENGES FACED BY WOMEN ENGINEERS

## Workplace Challenges

### Issues

- ❖ Gender bias
- ❖ Unequal opportunities
- ❖ Limited leadership roles
- ❖ Technical field stereotypes

## Work-Life Balance

### Discussion

- ❖ Family responsibilities
- ❖ Career growth
- ❖ Flexible workplace policies

## Barriers in Technical Fields

### Examples

- Fieldwork difficulties
- Limited mentoring
- Access to advanced training
- ❖ Today's challenges — climate change, resource scarcity, population growth (to name a few) — require innovative solutions.
- ❖ Women engineers are at the forefront of developing sustainable technologies and infrastructure that solve real-world problems.



Men

Women



76%



24%

oil and gas

75%



25%

electric power industry

74%



26%

coal mining

83%

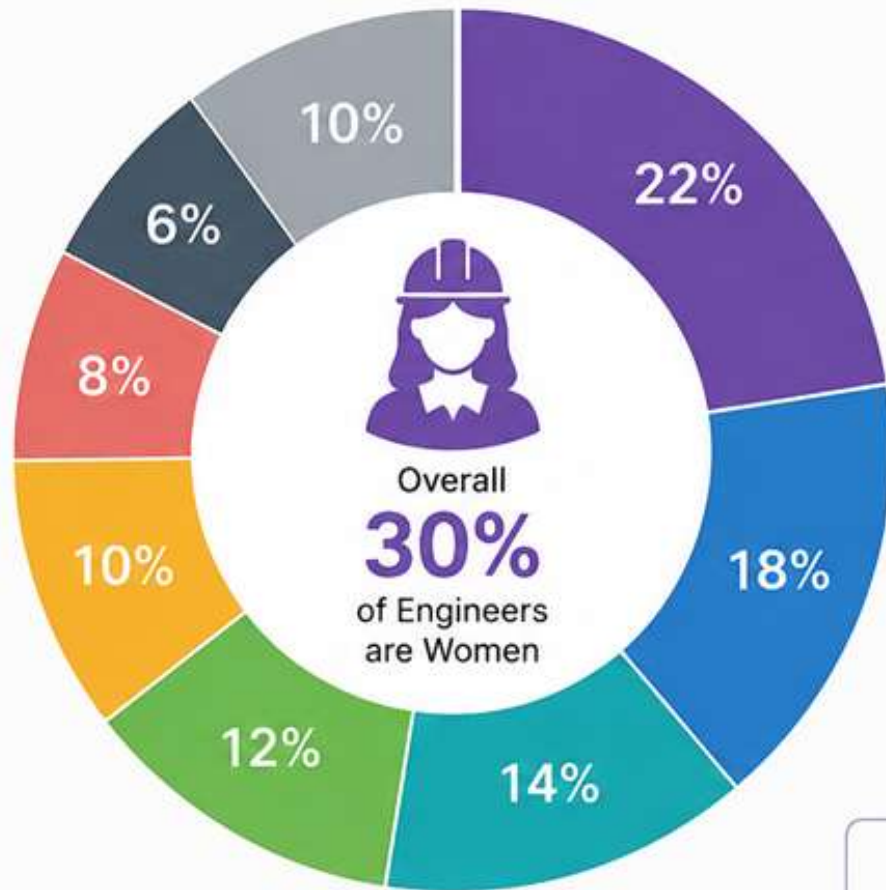


17%

renewable energy

# Women in Engineering in Myanmar (All Disciplines)

## Percentage of Women Engineers by Discipline



Percentage of Women Engineers by Discipline	
Civil Engineering	22%
Electrical Power Engineering	18%
Mechanical Engineering	14%
Electronics & Communication Engineering	12%
Information Technology / Computer Engineering	10%
Chemical Engineering	8%
Environmental Engineering	6%
Other Disciplines*	10%
<b>Total (All Disciplines)</b>	<b>100%</b>



Overall, women represent **30%** of the total engineering workforce in Myanmar.

Source:  
Myanmar Engineering Council (MEC)  
Engineering Manpower Survey  
(2023)

\* Other Disciplines include Industrial Engineering, Mining Engineering, Agricultural Engineering, Petroleum Engineering, Materials Engineering, and others.

# OPPORTUNITIES & FUTURE TRENDS

## STEM Education Growth

### Opportunities

- ❖ Engineering scholarships
- ❖ Technical education
- ❖ International cooperation



## Leadership Opportunities

### Areas

- Project management
- Research leadership
- Entrepreneurship

**MENTORSHIP FOR  
WOMEN IN STEM**



**Motivation**

- Contribution to society
- Diversity-gender gap



**Encouragement**

- Participation



**Mentoring**

- Tool



**Interest**

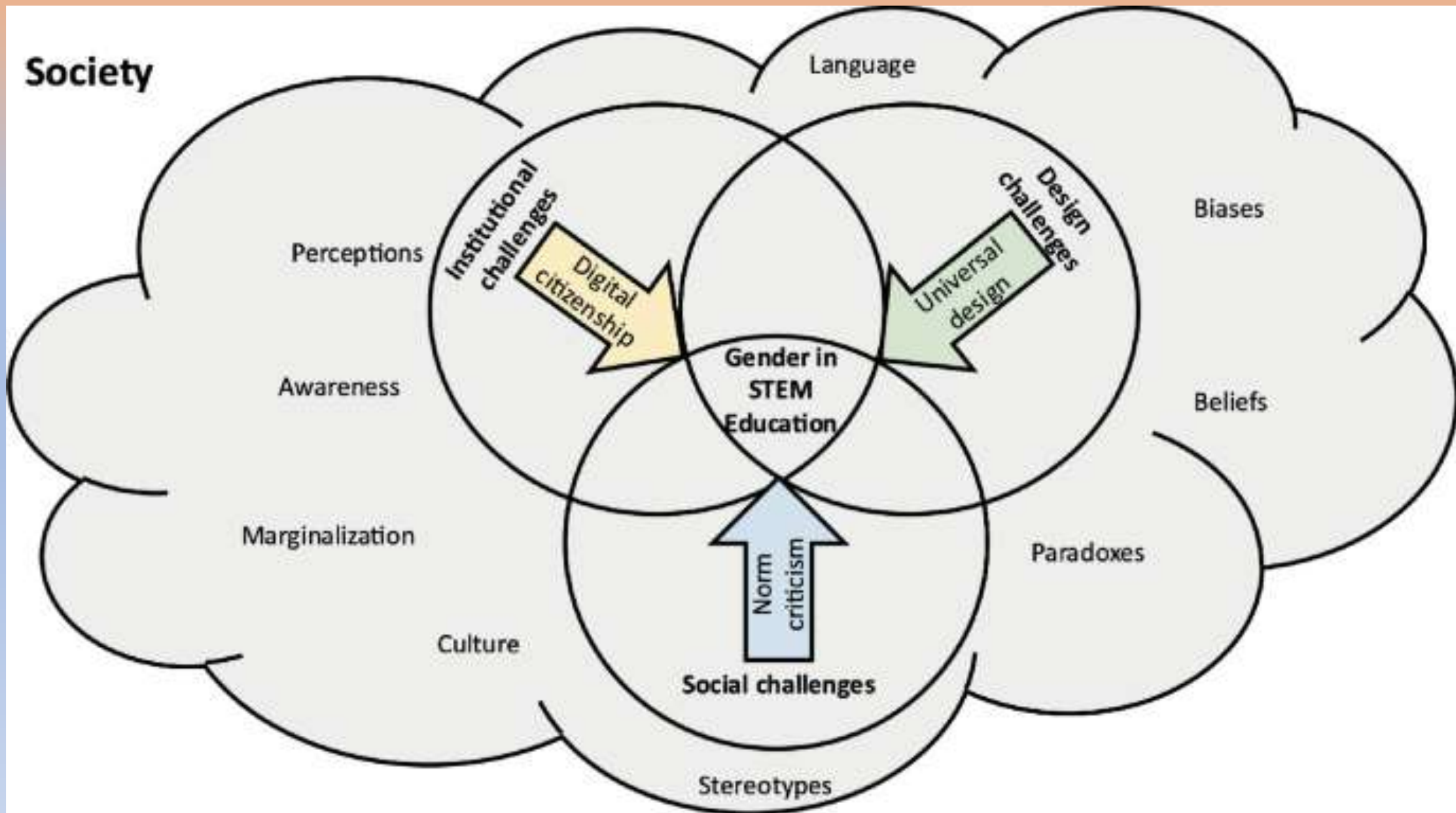
- Support and leadership
- Space for learning and training

# WOMEN IN STEM:

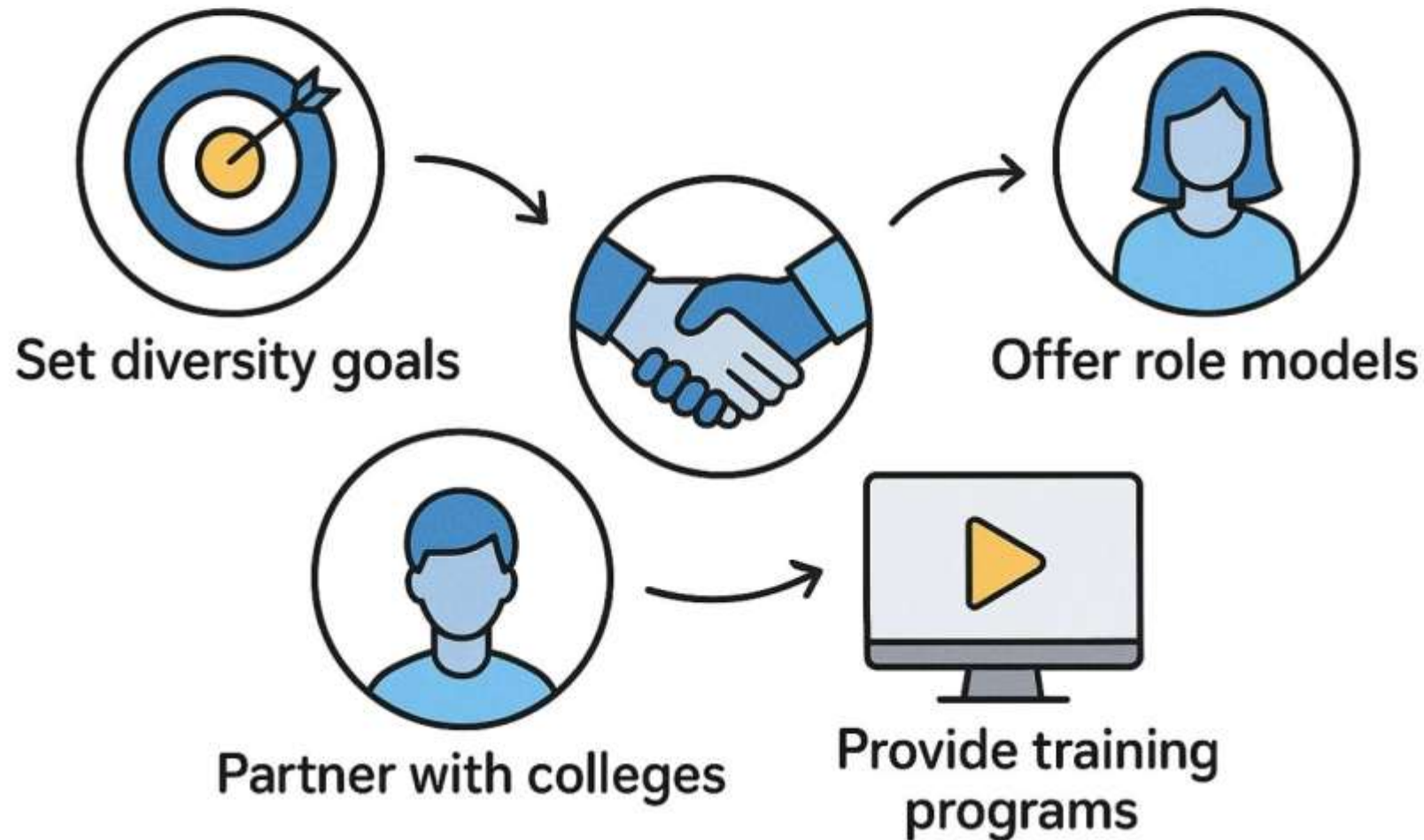
addressing skills shortages and how to encourage more women into engineering roles



# Society



# Strategies To Increase Female Representation in STEM

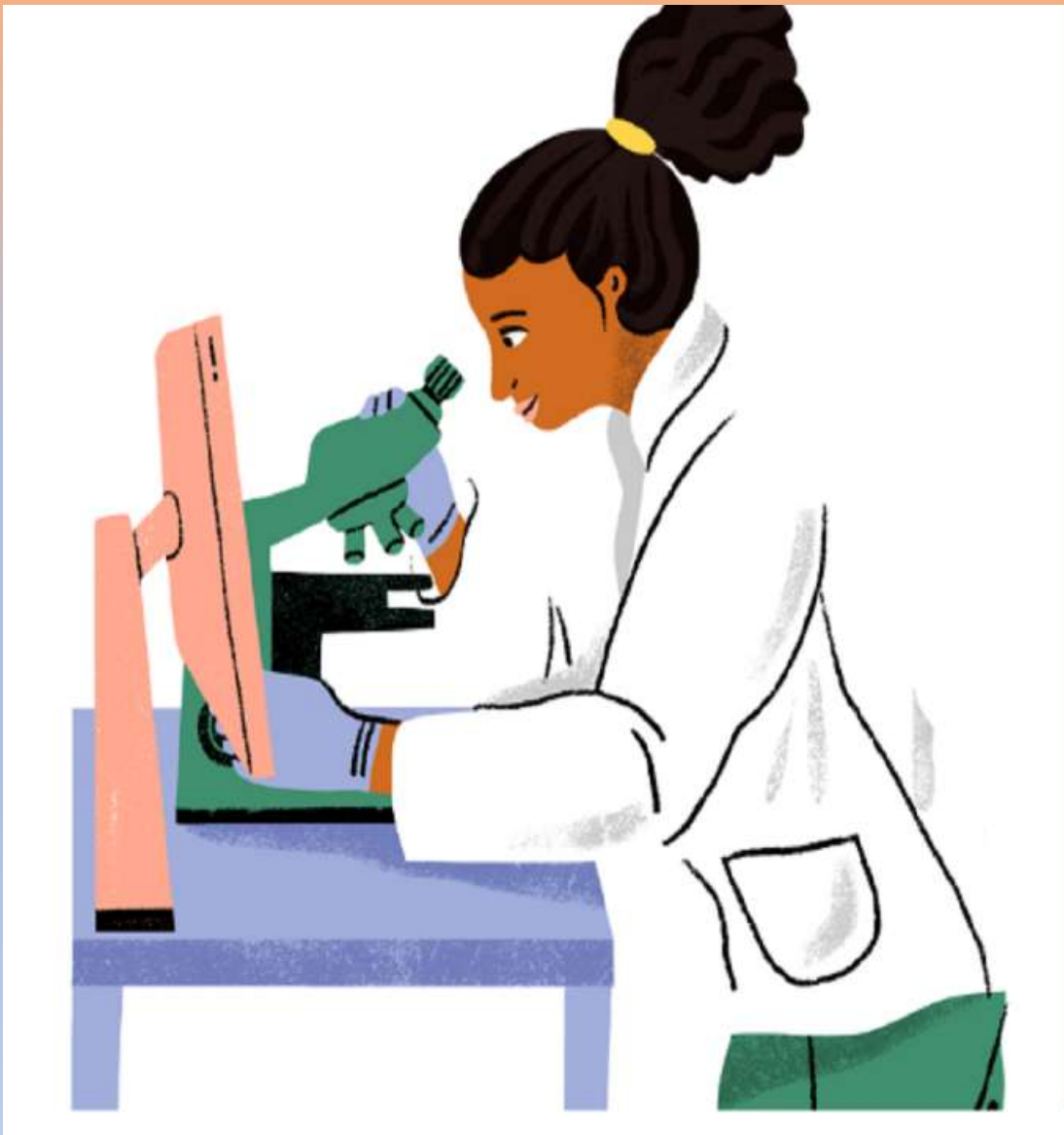


# RECOMMENDATIONS

## Strategies for Improvement

- Equal opportunities
- Professional training
- Mentorship programs
- Government support





**Empowering Women in STEM: Driving Sustainable Development with  
SDG 17**

# CONCLUSION

## Final Message

- Women engineers are essential for sustainable development
- Technical knowledge + leadership create innovation
- Encourage future women engineers



