# Bachelor of Industrial and Systems Engineering

# ISE Student Handbook 2023-2024

***Industrial Engineers are the only engineering professionals trained specially to be productivity and quality improvement specialists***

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# 1 Princess Nourah bint Abdulrahman University

## 1.1 PNU Vision

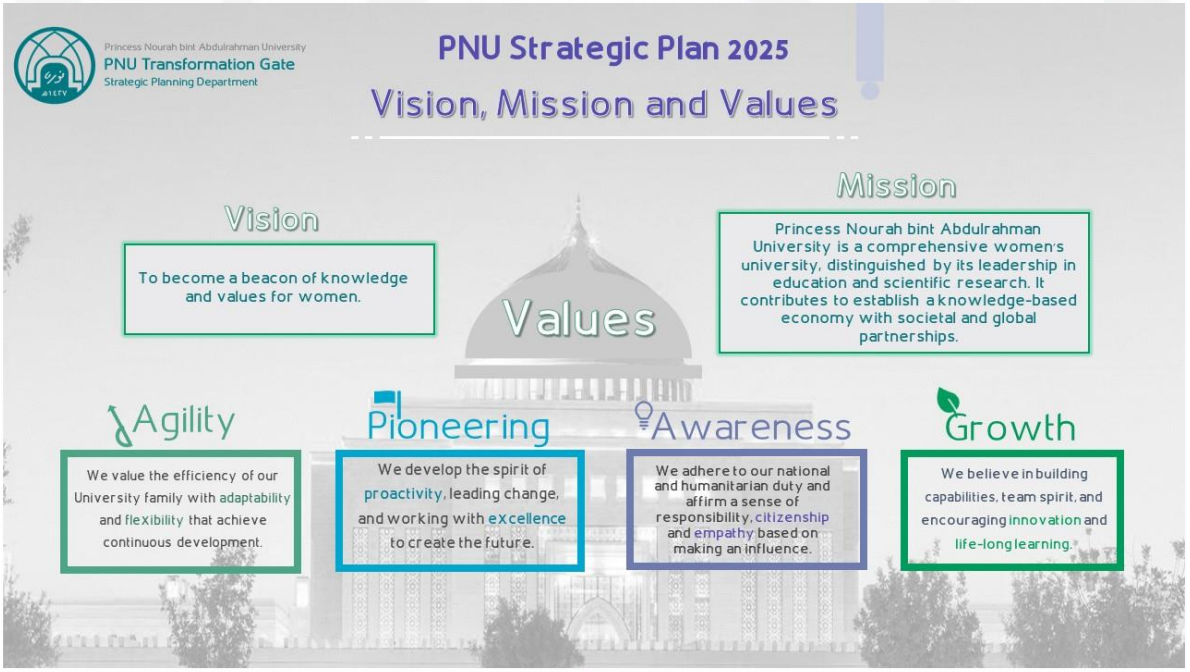
To become the beacon of knowledge and values for women.

## 1.2 PNU Mission

Princess Nourah bint Abdulrahman University is a comprehensive women's university, distinguished by its leadership in education and scientific research. It contributes to establish a knowledge-based economy with societal and global partnerships.

## 1.3 PNU Values

Agility, Pioneering, Awareness, Growth



### 1.4 PNU Graduate Attributes (GAs)

The Graduate Attributes assessment aims to evaluate how well students have gained the essential knowledge, skills, and values necessary for their personal and professional development. Assessing students' achievement of these attributes is a vital aspect of higher education institutions' efforts to cultivate graduate attributes. At the PNU level, the list of Gas is listed in the following link: PNU Graduate attributes and ISE Graduate attributes

# 2 The College of Engineering (CEN)

## 2.1 College's Vision

Excellence in engineering education, scientific research, and community service for women.

## 2.2 College's Mission

Qualifying skilled and professional female engineers in an innovative educational and research environment to build the national workforce and support economic and societal sustainable development.

## 2.3 College of Engineering Strategic Goals

The College of Engineering at Princess Nourah University relies on 3 strategic goals to achieve its vision and mission:

- Providing academic programs that ensure the improvement of educational outcomes and support women's participation in the labor market.
- Supporting innovation, scientific and research production in the engineering field.
- Enhancing sustainability and community service to ensure institutional advancement.

# 3 Industrial and Systems Engineering Department

## 3.1 Vision

Local and global Leadership and excellence in the field of Industrial and Systems Engineering.

## 3.2 Mission

Qualifying highly skilled female engineers, capable of competing locally and globally within an integrated academic environment that promotes knowledge and skills and supports innovation and scientific research contributing to achieving the national goals of sustainable development and community service.

## 3.3 Department Goals

1. Apply modern technologies in the field of industrial engineering and systems to identify problems and reach optimal solutions to elevate the quality of industrial and service institutions.
2. Adhere to the ethical standards and integrity of the engineering profession.
3. Foster community engagement to enhance the quality of life in society.
4. Face professional challenges using modern knowledge and technology.
5. Ensure a high level of communication and leadership skills.
6. Encourage postgraduate studies by cultivating an environment that supports scientific and research productivity.

# 4 Bachelor of Industrial and Systems Engineering Program

## 4.1 Program Mission

Qualifying industrial and systems female engineers, with high-level scientific, competitive, and professional competencies to meet labor market needs, and contribute to fostering innovation, scientific research, and community service, in line with national goals for sustainable development.

## 4.2 Program Goals

- Goal 1: Promote educational excellence by integrating modern technologies in the field of industrial engineering and systems.
- Goal 2: Focus on identifying and solving problems to improve local processes in governmental, industrial, and business sectors.
- Goal 3: Support research activities and innovation in industrial and systems engineering.
- Goal 4: Encourage faculty and students to contribute to advancements in knowledge and technology, fostering a culture of continuous improvement and innovation.
- Goal 5: Cultivate a program-wide commitment to community service and sustainable development.
- Goal 6: Improve societal well-being and environmental stewardship through collaborative initiatives that extend the impact of industrial engineering and systems on the community.

## 4.3 Program Graduates attributes

The graduates of the Industrial and systems Engineering program will be able to:

- Apply modern knowledge and technologies in the fields of Industrial and systems Engineering to address challenges encountered in engineering careers.
- Identify, formulate, and solve engineering problems to bolster the process of engineering decision-making using the appropriate methods.
- Develop creative and innovative solutions and conduct engineering judgment based on the critical thinking.
- possess skills in industrial engineering, including problem definition, formulation, design, and analysis.
- have the capability to advocate for engineering research activities, in accordance with both institutional and community needs.

- Demonstrate advanced communication skills and leadership abilities for effective performance in supervisory roles within the industry.
- Adhere to the ethical standards and integrity of the industrial and systems engineering profession.
- Demonstrate interest, motivation, and capability to engage in ongoing lifelong learning.
- Foster industrial engineering skills in a professional environment, including considerations of ethics and safety.

# 5 Program Learning Outcomes (PLOs)

The program learning outcomes of the ISE program are classified into three domains as required by the NCAAA. Each domain encompasses various learning outcomes that the ISE program might aim to achieve. PLOs are shown on the table below:

### 5.1.1 Knowledge & Understanding

| Domain 1: Knowledge and understanding | |
|---|---|
| Description: Outcomes in this domain ensure that students acquire a solid foundation in industrial and systems engineering concepts, theories, and methodologies. This includes understanding complex systems, engineering management | |
| K1 | Define theoretical concepts related to the industrial and systems engineering field. |
| K2 | Associate industrial engineering theories and models to real problems using mathematical and basic sciences. |
| K3 | Recognize the impact of industrial engineering solutions in a global, economic, environmental and societal context. |
| K4 | Recall the knowledge of industrial engineering methodologies and research for addressing topical problems. |

### 5.1.2 Skills

| Domain 2: Skills | |
|---|---|
| Description: Outcomes in this domain guarantee students excel in problem-solving, analysis, interpretation, using experiments and software, innovation, and communication. They're prepared for today and future challenges with ethical professionalism. | |
| S1 | Employ engineering, scientific, and mathematical principles to analyze pertinent data while formulating industrial and systems engineering problems, to bolster the process of engineering decision-making. |
| S2 | Examine modern engineering problems and trends, employing experiments and software tools to connect industrial engineering theories with real applications. |
| S3 | Apply engineering design to produce solutions in industrial engineering field that meet specified needs with consideration of public health, safety, as well as social, environmental, and economic factors. |
| S4 | Develop engineering interpretation and judgment skills using critical thinking and creative and innovative solutions in theoretical and experimental field of industrial and systems engineering. |
| S5 | Communicate effectively with a range of audiences to build a relationship with industrial engineering community and to provide entrepreneurship. |

### 5.1.3 Values

| Domain 3: Values, Autonomy, and Responsibility | |
|---|---|
| Description: Outcomes in this domain emphasizes the development of professional ethics, leadership qualities, and a deep understanding of the broader impacts of engineering solutions. | |
| V1 | Support work teams providing leadership and creating a collaborative and inclusive environment while establishing goals to meet and planning tasks related to industrial and systems engineering field. |
| V2 | Judge the impact of industrial engineering solutions in global, economic, environmental, and societal contexts while recognizing engineering ethical and professional responsibilities. |

# 6 ISE Program Study Plan

| First Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | English language (1) | ENG 101-1 | 3 | - |
| 2 | University Mandatory (1) | - | 2 | - |
| 3 | Calculus (1) | MATH 101T | 3 | - |
| 4 | General Physics for Engineering (1) | PHYS 102 | 4 | - |
| 5 | Programming Language (1) | CS110T | 4 | - |
| 6 | University Elective (1) | - | 2 | - |

| Second Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | University Mandatory (2) | - | 2 | - |
| 2 | General Physics for Engineering (2) | PHYS 103 | 4 | PHYS102 |
| 3 | General Chemistry for Engineering | CHEM 103 | 4 | - |
| 4 | Calculus (II) | MATH 103T | 4 | MATH 101T |
| 5 | English language (2) | ENG 102-2 | 3 | ENG 101-1 |

| Third Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Academic Writing for Engineering | ENG 104 | 3 | ENG 102-2 |
| 2 | Probability and Statistics for Engineering (1) | MATH 265-1 | 2 | MATH 103T |
| 3 | Calculus (III) | MATH 205 | 4 | MATH 103T |
| 4 | Solid Mechanics | ISE 205 | 3 | PHYS 102<br>MATH 103T |
| 5 | Principles of Linear Algebra | MATH 242T | 3 | MATH 101T |
| 6 | University Elective (2) | - | 2 | |

| Fourth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Engineering Drawing | ISE 201 | 3 | |
| 2 | Introduction to Engineering Design | ECE 203 | 2 | MATH 103T |
| 3 | Academic & Professional Communication for Engineering | ECE 200 | 3 | ENG 104 |
| 4 | Differential Equations | MATH 221T | 3 | MATH 103T |
| 5 | Probability and Statistics for Engineering (2) | MATH 265-2 | 2 | MATH 265-1 |
| 6 | University Elective (3) | - | 2 | |

| Fifth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Financial Management for Engineering | ISE 202 | 2 | MATH 205<br>MATH 221T |
| 2 | Operations Research (1) | ISE 240 | 3 | MATH 242T |
| 3 | Material Science and Engineering | ISE 204 | 3 | CHEM 103<br>PHYS 103 |
| 4 | Programming Applications for Engineering | ECE 201 | 3 | CS 110T |
| 5 | Entrepreneurship | BUS 353 | 3 | - |
| 6 | Decision and Data Analytics | ISE 250 | 3 | MATH 265-2 |
| 7 | University Elective (4) | - | 2 | - |

| Sixth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Quality Control | ISE 230 | 3 | MATH 265-2 |
| 2 | Human Factor Engineering | ISE 260 | 3 | ISE 250 |
| 3 | Introduction to Numerical Analysis | MATH 353T | 4 | MATH 103T<br>MATH 242T<br>CS 110T |
| 4 | Engineering Ethics | ISE 203 | 2 | - |
| 5 | Project Management | ISE 210 | 3 | MATH 265-2 |
| 6 | Production Planning and Control (1) | ISE 220 | 3 | ISE 240 |

| Seventh Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Production Planning and Control (2) | ISE 321 | 3 | ISE 220 |
| 2 | Operations Research (2) | ISE 341 | 3 | ISE 240 |
| 3 | Production Information Systems | ISE 351 | 3 | ISE 220 |
| 4 | Industrial Safety Engineering | ISE 331 | 2 | ISE 260 |
| 5 | Engineering Economy | ISE 305 | 3 | - |
| 6 | Program elective (1) | - | 3 | - |

| Eighth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Supply Chain Management Principles | ISE 311 | 3 | Co requisite ISE 322 |
| 2 | Scheduling of Industrial Operations | ISE 322 | 3 | ISE 341<br>ISE 321<br>Co requisite ISE 311 |
| 3 | Design of Experiments | ISE 343 | 3 | ISE 250<br>MATH 265-2 |
| 4 | Maintenance and Reliability | ISE 332 | 3 | ISE 341<br>MATH 265-2 |
| 5 | Work and Process Improvement | ISE 361 | 3 | ISE 321 |
| 6 | Program elective (2) | - | 3 | - |

| Ninth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Engineering Management | ISE 406 | 3 | ISE 305 |
| 2 | Facility Layout and Operations | ISE 413 | 3 | ISE 321<br>ISE 341 |
| 3 | Simulation Modeling and Analysis | ISE 444 | 3 | ISE 321<br>ISE 341<br>MATH 265-2 |
| 4 | Capstone Design Project (1) | ISE 471 | 2 | 139 CRH |
| 5 | Program elective (3) | - | 3 | - |

| Tenth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Capstone Design Project (2) | ISE 472 | 2 | ISE 471 |
| 2 | Co-op Training | ISE 473 | 6 | 153 CRH |

## 6.1 Elective Courses Year 4

| Seventh-Eighth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Service Operations Management | ISE 312 | 3 | ISE 321 |
| 2 | Maintenance Planning and Control | ISE 333 | 3 | ISE 332 |
| 3 | Total Quality Management | ISE 334 | 3 | ISE 321, MATH 265-2 |
| 4 | Regression and Forecasting | ISE 342 | 3 | MATH 353T, MATH 265-2 |
| 5 | Metrology | ISE 344 | 3 | MATH 265-2, ISE 230 |
| 6 | Lean manufacturing | ISE 313 | 3 | ISE 230 |
| 7 | Manufacturing Economics | ISE 362 | 3 | ISE 361 |

## 6.2 Elective Courses Year 5

| Ninth Level | | | | |
|---|---|---|---|---|
| # | Course title | Course Code | Credit Hours | Pre-requisite/Co-requisite |
| 1 | Operations of Manufacturing Systems | ISE 412 | 3 | ISE 322 |
| 2 | Advance Topics in Supply Chain | ISE 414 | 3 | ISE 311 |
| 3 | Healthcare Systems Engineering | ISE 416 | 3 | ISE 322 |
| 4 | Marketing Management and Research | ISE 417 | 3 | ISE 322, Co-requisite ISE 406 |
| 5 | Special Topics in Industrial Engineering | ISE 423 | 3 | 139 CRH |
| 6 | Reverse Engineering | ISE424 | 3 | ISE 311 |
| 7 | Special Topics in Systems Engineering | ISE 452 | 3 | 139 CRH |

ISE Program study plan sequencing

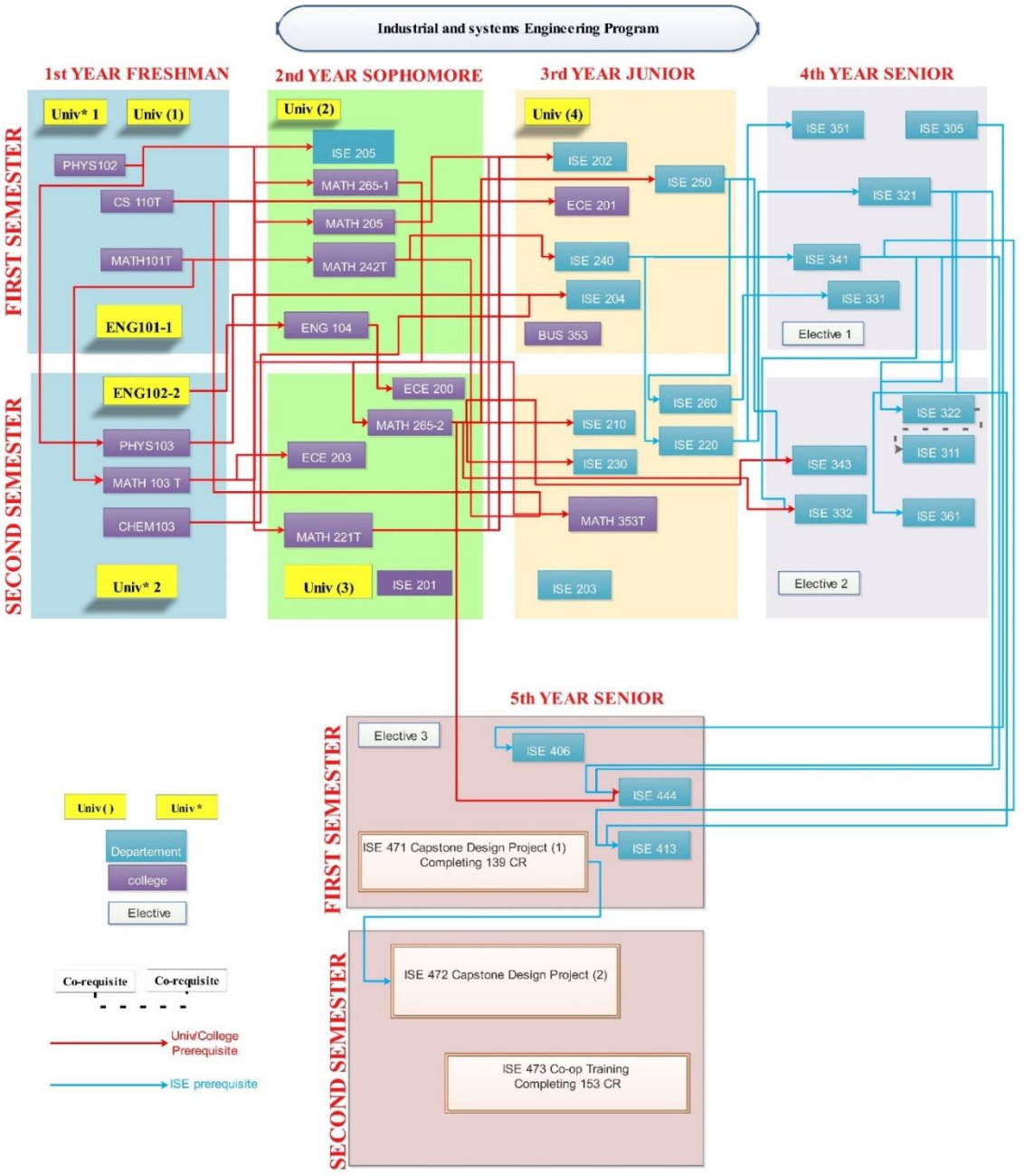



Figure 1 ISE program sequencing of courses

# 7 ISE required Courses Description

*ISE201*

The Engineering Drawing course encompasses fundamental and advanced topics crucial for effective engineering visualization and communication. Starting with basics like geometrical construction and isometric drawing, the course progresses to more advanced concepts such as orthogonal projection theory, dimensioning, sectioning, and auxiliary views. Special attention is given to developing freehand sketching skills. Additionally, the course introduces students to Computer-Aided Design using the SOLIDWORKS package, ensuring a practical application of learned concepts. Overall, the course provides a comprehensive foundation in engineering drawing, preparing students for practical application in design and visualization tasks.

*ISE 202*

The course covers a broad range of topics and explains the relationships between customers, employees, and shareholders in a corporate environment. Course topics discuss income statements; the balance sheet; cash flow statements; financial ratio analysis; corporate organization; the time value of money; net present value; and discounted cash flow analysis.

*ISE 203*

The Engineering Ethics course provides a comprehensive introduction to the ethical dimensions of the engineering profession. It covers key topics such as ethics and professionalism, codes of ethics from organizations like the National Society of Professional Engineers (NSPE) and the Saudi Council of Engineers (SCE). The course also explores Computer Ethics, including considerations related to data, software, intellectual property, privacy, and inappropriate access. Environmental ethics, with a focus on sustainable development, is integrated into the curriculum.

The course concludes with in-depth case studies, offering practical insights into ethical decision-making, particularly in instances of catastrophic engineering failures.

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*ISE 204*

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The course covers the exploration of engineering materials, delving into their properties and processing parameters. It encompasses an in-depth understanding of material compositions and structures, with a specific focus on various categories such as ferrous and non-ferrous alloys, ceramics, and composites.

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*ISE 205*

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The Solid Mechanics course offers a comprehensive study of fundamental principles governing materials and structures. It covers vector forces, equilibrium of particles, and force system resultants, progressing to the analysis of equilibrium in rigid bodies and the study of internal forces, friction, centroids, and moments of inertia. The dynamics of particles, including kinematics and kinetics, are explored, extending to rigid bodies in plane motion. The course concludes with an examination of work and energy in rigid bodies, along with an exploration of impulse and momentum in particles. Overall, the course provides a robust foundation for understanding structural mechanics and prepares students for advanced studies in related fields.

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*ISE 210*

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The course teaches the terminology of graphs and networks, network flow problems, algorithms and solutions. Project management, defining the project, scheduling issues in projects, project duration optimization, resources planning, evaluation and progress, estimating times and costs, critical processes in the projects, applications of project-planning and software in the strategy of

projects, integration of organization with projects and probability issues in project planning are addressed.

*ISE 220*

The Production Planning and Control course presents an introduction to operations management, encompassing diverse aspects of system productivity calculations, both qualitative and quantitative forecast measurements, as well as techniques for monitoring and control. The curriculum extends to industry process capacity analysis, emphasizing the management and control of inventory. Specialized topics include inventory management for probabilistic demand, strategies for supply chain management, and the application of benchmarking for performance measurement.

*ISE 230*

The course covers fundamental definitions, concepts, and terminology employed in quality control systems. It explores analytical, practical, and statistical engineering tools aimed at enhancing quality, reliability, and design within a manufacturing environment. The focus is on implementing effective quality systems, equipping students with the knowledge and skills necessary for ensuring and improving product quality in various industrial settings.

*ISE 240*

The course covers the introduction to mathematical programming and optimization. Characteristics of linear programs. Modeling of various industrial programs as linear programs. Graphical solutions. Introduction to the theory of simplex methods. Goal programming method. Transportation and assignment problems and solution techniques. Network analysis: Shortest path, minimum spanning tree, maximum flow problem and minimum cost flow.

*ISE 250*

The Decision and Data Analysis course offers an integrated approach, combining decision and data analytics to address practical business challenges. Students engage in hands-on projects that involve system modeling, data collection, analysis, and report writing to apply theoretical concepts to real-world scenarios.

*ISE 260*

The course delves into the intricacies of Human-Machine Systems, covering key aspects such as Information Theory, Human capabilities, and the design of Displays and Controls. It extends to the consideration of Hand Tools and Devices, Workplace Design, and the influence of Environmental and Thermal factors. Additionally, the course explores the dynamics of Physical Work and Manual Materials Handling, as well as the nuances of Speech Communications within the context of human factors engineering.

*ISE 305*

The course Introduces the concepts of economic decision-making from a cash flow viewpoint. It includes present worth analysis, cash flow equivalence, rates of return, replacement analysis, benefit-cost analysis, depreciation and taxes, and projects break-even point.

*ISE 311*

The course examines supply chain management (SCM) and discusses its importance and benefits to the overall strategy and competitiveness of firms of all sizes. Companies are evolving in an increasingly demanding and competitive global market. The course explores all of the key elements that comprise SCM.

*ISE 321*

The course Introduces students to the managerial concepts and quantitative techniques required in the areas of aggregate planning, MRP, scheduling for the short term, and decision modeling. To enable students to make efficient operations management decisions in practice.

*ISE 322*

This course deals with various problems in the area of scheduling. It includes single machine, Parallel machine, Flow shop, Open shop, and Job shop and Project scheduling. Also, it introduces Project Scheduling which includes Activity-On-Node and Precedence Diagramming, Resource Levelling & Allocation, and Time Cost Trade-Off.

*ISE 331*

This course details principles of industrial accident prevention; accident statistics and costs; appraising safety performance; recognizing industrial health and safety hazards and recommending safeguards. Includes a study of the Occupational Safety and Health Act.

*ISE 332*

The Maintenance and Reliability course provides an introduction to the fundamental concept of reliability, exploring topics such as failure distributions and reliability characteristics. The curriculum covers the estimation of system reliability for both independent and dependent cases, along with maintenance workload analysis and calculations. Capacity planning of maintenance resources, maintenance work scheduling, and the auditing of maintenance, including the measurement of performance, are integral components of the course. Additionally, students gain insights into Computerized Maintenance Management Systems (CMMS) as a practical application in the field of maintenance and reliability.

*ISE 341*

The course aims to provide the basic knowledge and skills to design suitable optimization tools for real-life engineering problems in various fields by using integer programming, dynamic programming and nonlinear programming. Approaches by Markov chain and queuing theory are considered to enhance students' capabilities to tackle different type of problems.

*ISE 343*

The ISE 343 Design of Experiments course aims to provide the knowledge and skills to design, analyze, interpret the results and make conclusions from an experiment. The course covers the theoretical basis of these points as well as problem solving techniques through hand calculations and computer software.

*ISE 351*

The Production information systems course focuses on the design and analysis of production information systems, critical success factors for companies, effectiveness, and efficiency through information systems usage in production and service systems, success cases in industry. Investigation of data modelling, storage, acquisition, and utilization in Industrial Engineering via manual and computerized methods. Development of effective spreadsheet applications, design and implementation of relational databases, web-based database applications, interface design, the system development life cycle applied to data management applications, ERP (Enterprise Resource Planning) software and decision support systems are addressed.

*ISE 361*

The Work and Process Improvement course provides an introduction to the principles of work analysis and design, encompassing methods engineering. The curriculum delves into the study of basic work

measurement techniques, exploring the applications and limitations of methodologies such as stop-watch time study and pre-determined motion time systems. Students gain insights into optimizing work processes and enhancing efficiency through systematic analysis and improvement methodologies.

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*ISE 406*

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This course is a general course designed to teach engineers the basic management skills they will need to be effective throughout their careers. It covers organization structure and the role of engineers in management of organizations. The management process, management and planning strategies, managerial functions related to production, inventory and human resources. Topics cover the basic elements of project planning and control including process of project management, strategic and intermediate term planning,

organizing, leadership, motivation, finance, budgeting and operations management. Case studies pertaining to engineering problems will be utilized.

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*ISE 413*

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The course provides the knowledge and skills to design and evaluate an industrial facility capacity and a layout plan and carry a design project for a factory system. Also, the course gives the principle of location problem analysis.

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*ISE 444*

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This course Introduces the students to the concept of simulation, including system analysis, simulation modeling, simulation languages, appropriate inputs, appropriate output, and validation of the simulation model, and random number generation, Comparing alternative systems, variance reduction techniques. In addition, introduce the students to ARENA simulation language.

*ISE 471*

Senior students select a design project and apply learned tool and knowledge to design process, components, and/or system of the production system; Students develop work plan, identify the problem, formulate the problem through reviewing background and integrating knowledge; prepare for/or preliminary conducting of the experiments, Collect the field data, develop the mathematical model if applicable; and writing a report stating preliminary findings.

*ISE 472*

This course is continuation of capstone design project I; the senior students implement a production design project based on following tasks: selecting and finalizing appropriate design and/or experimental tools or mathematical/computer model; performing design/experiments or modeling/computation; performing analysis and evaluation of result; interpreting and drawing conclusions of results, recommendation, and future work. The design may involve experimentation, realization and/or computer project. The project may be implemented using software, hardware, or a combination of both. Writing final and complete report; presenting and defending the project.

*ISE 473*

Cooperative training integrates classroom theory and learning experiences at a workplace. The experience enables students to apply and refine the knowledge and skills acquired in a related curriculum course. The Co-op is a supervised work experience position in the government or the private sector which aimed to assist students in making the transition from the classroom to industry. At this level, students are required to finish 450 hours during a period of 15 weeks of industrial employment to work in appropriate firms. Students are evaluated on their performance on the job and are required to submit an extensive formal report on their experience.

# 8 ISE Faculty members

| Name | E-mail | Degree |
|---|---|---|
| Dr Nermeen Abdullah | NMAbdullah@pnu.edu.sa | Assistant Professor Head of department |
| Dr Shabbab Ajmi Alhammadi | SAAlhammadi@pnu.edu.sa | Professor |
| Dr Imen Safra | imsafra@pu.edu.sa | Assistant Professor |
| Dr Kaouther Ghachem | KGMaatki@pnu.edu.sa | Associate professor |
| Dr Samia Elattar | SAElattar@pnu.edu.sa | Assistant Professor |
| Dr Faiza Benabdallah | FMbenabdallah@pnu.edu.sa | Assistant Professor |
| Dr Ghada Alaswah | gaalsawah@pnu.edu.sa | Assistant Professor |
| Dr Ghada Elnaggar | GRElnaggar@pnu.edu.sa | Assistant Professor |

# 9 Admission and Registration

Admission procedures for Princess Nourah Bint Abdulrahman University commence through the Unified Electronic Admission Portal for Female Students at the following link: https://www.rgu-admit.edu.sa/

General Admission Requirements and Admission Procedure for Princess Nourah Bint Abdulrahman University is published at the Deanship of Admissions and Registration at the following link: https://pnu.edu.sa/en/Deanship/registration/Pages/default.aspx

Admission criteria for the college of Engineering is 30% for high school , 30% for Aptitude test, and 40% for achievement test. College of Engineering requires students to complete the foundation year.

Students will be placed in a specific program after successfully completing the foundation year and meeting the allocation requirements and conditions, if there are available seats in the desired program.

## 9.1 Allocation Guidelines for the College of Engineering:

1. Completion of all foundation year courses within two academic years, including excused semesters.
2. Achieving a cumulative GPA of at least 3.0 in the foundation year.
3. Eligible students will be allocated to their majors during the summer semester of their first academic year and will start the next semester within the ISE program.

## 9.2 Selection Mechanism for ISE Program Major in the ISE Department

Allocation is done automatically and competitively among all eligible students according to the program's specified capacity, in the following order:

1. Preference order
2. Point average for the following courses: Math 101T, Physics 102, Chemistry 110T, Physics 103, Math 103T, Chemistry 103
3. Cumulative GPA for the foundation year (in case of a tie in the point average mentioned in 2.
4. Yearly composite admission percentage (30% high school + 30% aptitude + 40% achievement) (in case of a tie in the cumulative GPA for the foundation year mentioned in paragraph 3)
5. Seats are allocated based on the capacity of the different programs.

## 9.3 Transfer to another College:

Foundation year students in the College of Engineering may be transferred to other colleges according to the announced transfer conditions in the following cases:

1. Failure to complete all foundation year courses within two academic years, including excused semesters.
2. Achieving a cumulative GPA of less than 3.0.

**Important Notes:**

- Courses taken by the student outside the College of Engineering's foundation year plan will not be included in the calculation of the foundation year GPA.
- If an eligible student does not enter their preferences through the academic system, they will be allocated according to the available seats.

**Contact for Allocation Inquiries: Email:** Pys@pnu.edu.sa **Phone:** 01182 43493 | 01182 434

# 10 Student Rights and Duties

The program follows the Document of Rights and Obligations of Students at Princess Nourah Bint Abdulrahman University which is published on the university website and exists also in the university student booklet.

For issues regarding students' rights, you can contact Protection of Students' Rights Unit:

- https://pnu.edu.sa/en/Deanship/studaffairs/Pages/default.aspx
- Student Rights and Obligations Document
- Student Conduct and Discipline Rules

## 10.1 Language of Instruction:

All specialized courses will be taught in English, while the remaining courses will be taught in a combination of Arabic and English.

## 10.2 Study System:

The study system in the program follows a level system that divides the academic year into two semesters, and the graduation requirements for obtaining the degree are distributed into 10 levels according to the

study plan approved by the university council. The ISE Program requires the completion of 153 credit hours to start co-op training and 161 credit hours to graduate from the program.

## 10.3 Communication with students

Since day one the student will receive a university email address. The student email is the university's official means of communication with students. Students are responsible for everything that is sent to their university email address, whether they have activated it or not.

### 10.3.1 Activation:

To activate your email, please go to the university website's electronic portal, click on "Student Email," and complete the activation process using your student ID number and university number.

### 10.3.2 Support:

- If you have any problems with your university email, please contact technical support at UCC@pnu.edu.sa
- All students are responsible for checking their university email regularly. They can use their university email to access the electronic library and track their academic progress through the Blackboard learning management system.

## 10.4 Blackboard Learning Management System:

### 10.4.1 Overview

Blackboard is the learning management system (LMS) used for communication between faculty and students. It facilitates the exchange of course materials, including syllabi, lectures, assignments, and exams. check the following link for more details Student Guideline for Blackboard and Assistance Center for LMS

### 10.4.2 Activation:

- **Student Responsibility:** At the beginning of each semester, students are responsible for linking their enrolled courses to the Blackboard system.
- **Activation Process:** To activate the link, students must access their Blackboard account using their university email address.
- **Assistance:** If students encounter difficulties linking their accounts or accessing the system, they should contact the live support for assistance.

### 10.4.3 Additional Notes:

- **Regular Access:** Students are encouraged to check their Blackboard accounts regularly to stay updated on course announcements, assignments, and other relevant information.
- **Course Materials:** Blackboard provides a centralized platform for accessing course materials, including syllabi, lecture notes, presentations, and supplemental resources.
- **Assignments and Assessments:** Blackboard facilitates the submission of assignments and the completion of online assessments.
- **Communication and Collaboration:** Blackboard offers various tools for communication and collaboration, such as discussion forums, messaging features, and group workspaces.

# 11 Academic Regulations:

## 11.1 Duration of Study:

- The minimum number of semesters required to complete the graduation requirements 10 semesters, and the maximum is 14 semesters.

## 11.2 Course Load:

- The minimum number of credit hours a student can register for in a semester is 15 hours, and the maximum is 22 hours.

- Probationary students or fourth-chance students are allowed to register for 12 credit hours in a semester.

## 11.3 Semester Withdrawal:

- Semester withdrawal is an academic action that means a student does not register for any courses in the semester for which withdrawal is requested.
- Semester withdrawal is requested by the student and does not count towards the normal graduation period.

## 11.4 Semester GPA:

- The semester GPA is calculated by dividing the total number of points earned by the student by the total number of credit hours for all courses taken in the semester.

## 11.5 Cumulative GPA:

- The cumulative GPA is calculated by dividing the total number of points earned by the student in all courses taken since enrolment in the university by the total number of credit hours for those courses.

## 11.6 Additional Notes:

- Students are advised to consult with their academic advisor to determine the optimal course load and plan their graduation requirements effectively.
- Semester withdrawal should be used judiciously and only in exceptional circumstances.
- Maintaining a good academic standing, reflected by a satisfactory GPA, is essential for academic progress and graduation.

## 11.7 Grading and Semester GPA

| Score | weight (out of 5) | Grade | Grade Symbol |
|---|---|---|---|
| 95 to 100 | 5 | Excellent High | A+ |
| 90 to below 95 | 4.75 | Excellent | A |
| 85 to below 90 | 4.5 | Very Good High | B+ |
| 80 to below 85 | 4 | Very Good | B |
| 75 to below 80 | 3.5 | Good High | C+ |
| 70 to below 75 | 3 | Good | C |
| 65 to below 70 | 2.5 | Satisfactory High | D+ |
| 60 to below 65 | 2 | Satisfactory | D |
| below 60 | 1 | Fail | F |

## 11.8 Academic Status of Students

**Academic Excellence:**

A student is considered academically excellent if their semester GPA is at least 4.5 and they have taken a minimum of 12 credit hours in that semester.

**Academic Warning (First Instance):**

A student is placed on academic warning if their cumulative GPA falls below 2.0 out of 5.0.

**Academic Warning (Second Instance):**

A student is placed on academic warning for the second time if their cumulative GPA falls below 2.0 out of 5.0 in the semester following the first academic warning semester.

**Academic Probation (Third Academic Warning):**

If a student receives three consecutive academic warnings due to their GPA falling below 2.0 out of 5.0, the Admissions and Registration Dean's Office may grant them a fourth chance to improve their cumulative GPA by taking additional courses.

**Academic Dismissal for Exceeding Study Duration:**

A student is academically dismissed if they do not complete the graduation requirements within the regular duration of study.

**Exceptional Opportunity:**

A student may be granted an exceptional opportunity (an additional semester) to complete the graduation requirements.

**Exceptional Opportunity Guidelines:**

- The College Council may grant a student an exceptional period to complete graduation requirements, not exceeding three semesters.
- The University Council (or its delegate) may grant a student an exceptional period not exceeding three semesters, not exceedingly twice the original duration of study.
- The summer semester is not included in the calculation of exceptional opportunities.
- Upon completion of the duration in the last semester, the student submits a request for an exceptional period through the self-service system.

**Additional Notes:**

- Students are advised to meet with their academic advisors regularly to monitor their academic progress and ensure they are on track to graduate within the prescribed timeframe.
- Academic warnings and probation serve as early indicators of potential academic difficulties and encourage students to seek additional support and resources to improve their performance.

- Exceptional opportunities are granted on a case-by-case basis and are subject to specific criteria and approval processes.
- Students should carefully review the guidelines and procedures for exceptional opportunities to ensure they are eligible and understand the application process.

For more details refer to the following documents:

- Foundation Year Guide
- Bannar link
- Bannar guideline
- Registration and Schedule Unit

## 11.9 Graduation

### 11.9.1 Graduation Requirements:

A student graduates after successfully completing the graduation requirements according to the study plan, with a cumulative GPA not less than the minimum GPA set by the University Council for each major. The College Council may, based on the recommendation of the relevant department council, determine appropriate courses for the student to take to raise their cumulative GPA, if they pass the courses but fail the grade.

### 11.9.2 Grades on Graduation Document:

The equivalent grade to the cumulative GPA that appears on the student's academic record and graduation document is as follows:

- **Excellent:** If the cumulative GPA is from 4.5 to 5.
- **Very Good:** If the cumulative GPA is from 3.75 to 4.49.
- **Good:** If the cumulative GPA is from 2.75 to 3.74.
- **Satisfactory:** If the cumulative GPA is from 2 to 2.74.

### 11.9.3 Honors:

Princess Nourah bint Abdulrahman University grants its students first- or second-class honours, which are recorded on the student's graduation document, according to the following regulations:

- The student must not have failed any course taken at the university or another university.
- The student must have completed the graduation requirements within the regular duration.
- The student must have studied at the university no less than 60% of the graduation requirements.
- The student must not have been dismissed for disciplinary reasons.

### 11.9.4 Cumulative GPA Requirements:

A student who has met the general conditions is awarded honours if they achieve the following cumulative GPA:

- First class honours are awarded to a student who graduates with a cumulative GPA of at least 4.75.
- Second class honours are awarded to a student who graduates with a cumulative GPA of 4.25 to 4.74.

### 11.9.5 Additional Notes:

- Students are advised to consult with their academic advisors regularly to ensure they are on track to meet the graduation requirements within the prescribed timeframe.
- Maintaining a satisfactory academic standing, reflected by a cumulative GPA above the minimum requirement, is essential for graduation and potential honours recognition.
- Honors recognition is a significant achievement that reflects a student's dedication to academic excellence and commitment to their studies.

# 12 Exam Regulations

The final exam is held only once at the end of the course period, during the academic level, semester, or full academic year. The start and end dates for final exams are determined in the academic calendar, which is approved by the University Council, and the dates for midterm exams for general and shared courses are provided by the Deanship of Admission and Registration. Students are not allowed to take exams for more than two courses on the same day, except with special permission from the University Council.

The duration of the final exam for all courses at the university is set at two hours. Midterm exams should not be less than one hour and not more than one and a half hours.

Students are not allowed to enter the exam 30 minutes after starting time, and they are not allowed to leave the exam before half of the exam time has passed.

If a student is unable to take the final exam due to an excuse, the College Council and the institute may accept the excuse and allow the student to take an alternative exam according to specified guidelines. Cheating, attempting to cheat, or violating the instructions and rules of the exam are punishable offenses according to the Student Code of Conduct and Discipline at Princess Nourah bint Abdulrahman University.

For further information please check the following links:

- PNU- Undergraduate Study and Examination Regulations and Executive Rules
- CEN-Examination Unit Guide
- Courses Equivalency Manual

# 13 Academic Advising

Academic advising is a comprehensive service provided by academic advisors at the program to familiarize students with academic regulations and policies. It also assists them in achieving academic success by helping them overcome academic, social, psychological, or health-related problems and difficulties.

## 13.1 Key Elements of Academic Guidance:

- **Orientation and Information:** Academic advisors provide students with essential information about the college's academic programs, course offerings, graduation requirements, and registration procedures.
- **Academic Planning and Advising:** Advisors help students develop personalized academic plans that align with their academic goals and interests. They also provide guidance on course selection, workload management, and effective study strategies.
- **Problem-solving and Support:** Advisors assist students in identifying and addressing academic challenges, such as low grades, difficulty with specific subjects, or time management issues. They also offer support for non-academic concerns that may impact academic performance, such as personal or financial difficulties.
- **Referral and Resource Coordination:** Advisors connect students with appropriate resources and support services within the university, such as tutoring centres, counselling services, or student support groups.
- **Transition and Career Planning:** Advisors guide students in preparing for their future careers by providing information about internships, job placement opportunities, and graduate school programs.

## 13.2 Objectives of Academic Advising in the Program:

1. Providing Academic Information to Students and Familiarizing Them with Academic Regulations and Policies.
2. Encouraging and Supporting High-Achieving and Talented Students and Assisting Struggling Students in Improving Their Academic Performance.
3. Developing Students' Problem-solving Skills and Guiding Them in Correcting Their Academic Path.

## 13.3 Role of the Student in the Academic Guidance Process:

1. Establish a Connection with the Academic Advisor:
2. Stay Informed through University Email
3. Seek Assistance from the Academic Advisor:
4. Review the Student Handbook
5. Maintain Awareness of Academic Procedures and Deadlines
6. Utilize Available Guidance Resources

For more information regarding academic advising and procedure to deal with outstanding, struggling, gifted and, creative student, you can revise the academic advising guide at CEN- Academic Guidance or email the college academic advising unit **Cen-sa-aeu@pnu.edu.sa**

For further information please check the following links:

- CEN- Academic advising Guideline
- Academic Advising Portfolio

# 14 Psychological and social counseling

The college provides psychological and social counselling through Psychological and social guidance and counselling office which aims to Preparing the student to be an effective member of society capable of psychological and social adaptation and compatibility.

# 15 Special needs students

One of the university services is the centre of Supporting People with Disabilities which offers academic, administrative, social, psychological, and technical support. This is based on the latest research practices and international standards to integrate these groups and enable them to serve themselves and society.


# 16 Internship

The Cooperative training program (Co-Op) is mandatory training before graduating that helps to build students' skills by integrating professional development with academic theory and practical

work experiences. Students will be assigned to different organizations and industrial companies for fifteen weeks to prepare themselves for the professional and engineering environment. The Co-Op training program involves three main parties: the willing partner (a private company or government entity willing to employ PNU students as interns), College of Engineering (on behalf of Princess Nourah bint Abdulrahman University), and the student. More information can be found at CEN- The Cooperative Training Program or by contacting the cooperative training unit at cen-e-uct@pnu.edu.sa

# 17 Important Links

For more information, click on each link.

1. Princess Nourah Bint Abdulrahman University
2. College of Engineering
3. Industrial and Systems Engineering Department
4. New Students
5. Academic Calendar
6. Academic system for students
7. E-Learning (Blackboard)
8. E-mail
9. Smart Suitcase
10. Forms
11. Student Support and Services Centers
12. The Rules governing the Protection of Students' Rights and Duties Unit
13. Students' Rights and Duties Regulation
14. Regulations and Tests
15. The Students Fund Department
16. Grants and Loans Unit
17. Deanship of Admission and Registration
18. Deanship of Students Affairs

Welcome to the ISE Department

College of Engineering