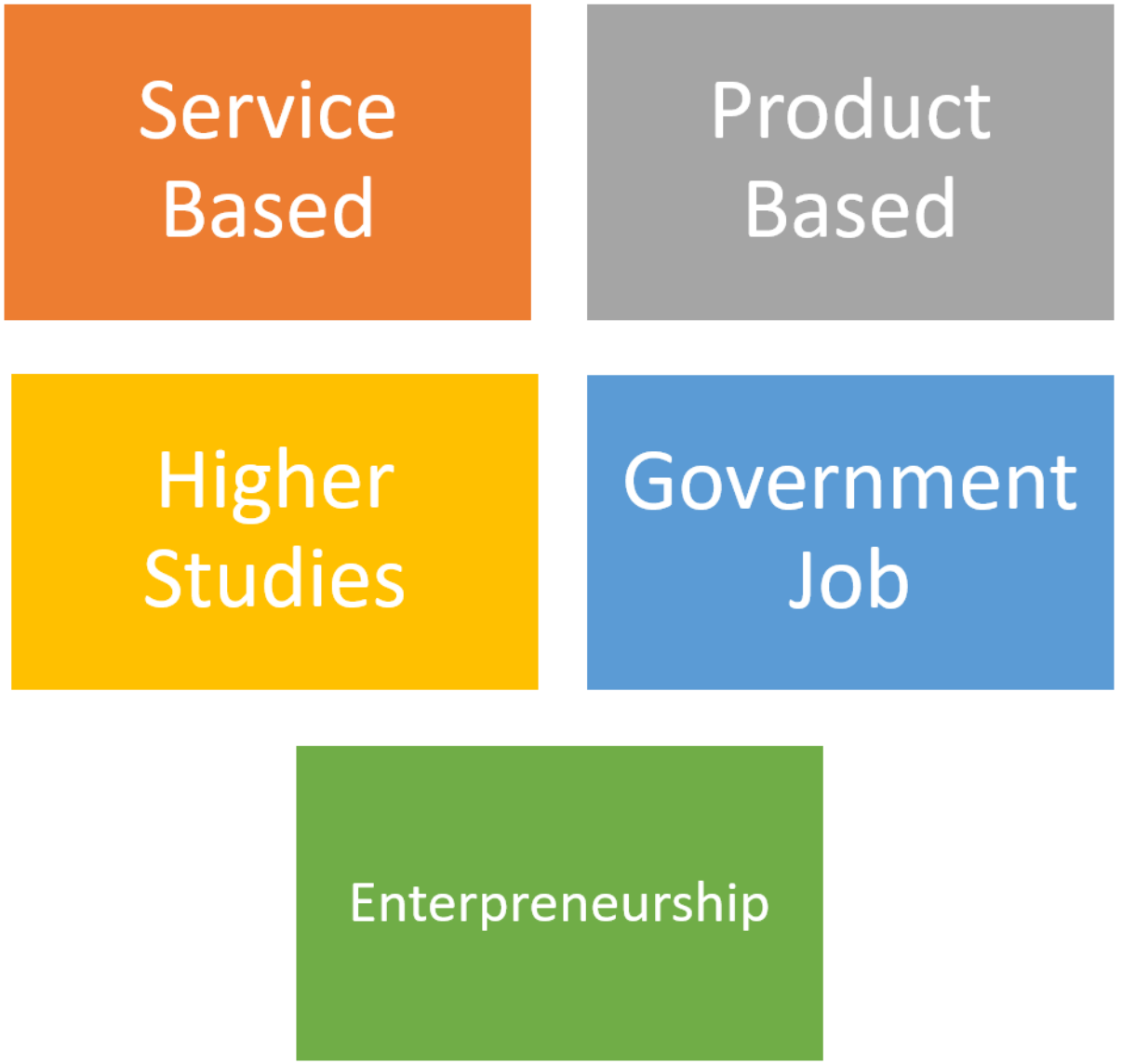
PATHWAY AREAS

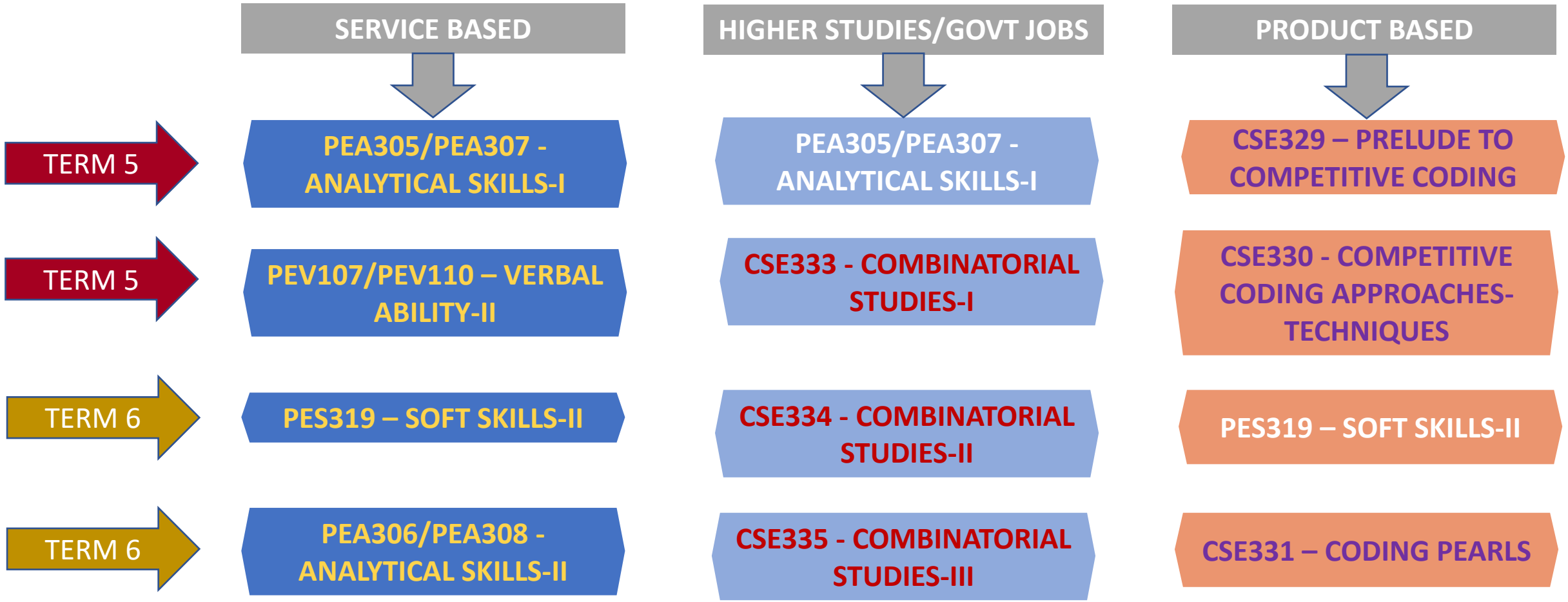
Pathway Area

A set of courses that allow students to develop specific skill and value package for a chosen career.

Career pathways provide a set of courses required to achieve desired goal after graduation.



Pathways and Courses



Program wise Pathway Elective Areas offered

PROGRAM CODE AND NAME	Career Pathway	Pathway Area
P102-NB-Dual Programme Diploma (Engg.) - B.Tech. (Computer Science & Engineering) P103-NB-Dual Programme Diploma (Engg.) - B.Tech. (Information Technology) P132-B.Tech. (Computer Science & Engineering) P132-H-B.Tech. (Computer Science & Engineering) (Hons.) P132-L-B.Tech. (Computer Science & Engineering) [Lateral Entry] P132-ND-Dual Degree B.Tech. - M.Tech. (Computer Science & Engineering) P132-NE-Dual Degree B.Tech. (Computer Science & Engineering)-MBA P133-B.Tech. (Information Technology) P133-L-B.Tech. (Information Technology) [Lateral Entry]	CORPORATE JOBS	SERVICE BASED
		PRODUCT BASED
	HIGHER STUDIES	HIGHER STUDIES
	GOVERNMENT JOBS	GOVERNMENT JOBS
P192-ND-Integrated B.Tech. - M.Tech. (Computer Science & Engineering) P192-NE-Integrated B.Tech. (Computer Science & Engineering) - MBA	CORPORATE JOBS	SERVICE BASED
		PRODUCT BASED

Service Based

This pathway prepare students for analytical, reasoning and soft skills.

Outcome

- Preparedness for job in industries.
- Provide better ingredients for success in career planning and placement drives.
- Equipped the students for entry-level jobs that require analytical, reasoning and soft skills in addition to technical skills.

Description of Courses – Service Based

PEA305 - ANALYTICAL SKILLS-I

This course focuses on improving quantitative and reasoning skills of learners, which helps them crack various exams held in placement drives for engineering students. It also provides a base to prepare for advanced level aptitude exams.

Course Outcome:

- Reproduce the concepts learned to solve various questions of quantitative and reasoning aptitude
- Observe the data given and interpret it from the given problem
- Apply the Concepts to solve Company Specific Aptitude tests
- Analyze the problems and use logic to interpret and handle different situations
- Select the appropriate approach to initiate the given problem
- Solve quantitative and reasoning aptitude in competitive examinations

Description of Courses – Service Based

PEV107 - VERBAL ABILITY-II

This course is completely placement oriented. Topics are identified from various placement papers.

Course Outcome:

- Associate learnings of sentence correction in written language usage scenarios
- Demonstrate awareness of sound inventory in overall oral competence
- Determine following components from a written passage: main idea, compare and contrast ideas, draw conclusions, and paraphrase information
- Develop critical thinking abilities for resolution of reasoned arguments
- Integrate awareness of grammatical components in oral language scenarios
- Express professional writing abilities adapting changing workplace expectations.
- Construct a coherent written passage(s) observing mechanics of writing.

Description of Courses – Service Based

PES319 - SOFT SKILLS-II

The course helps the students to build impactful personality through personal grooming. The students are trained to communicate with influence. Students are trained on group discussions and interview skills to help them in respective career pathways.

Course Outcome:

- Prepare powerful brand for career progression
- Articulate fluently with confidence
- Demonstrate critical thinking while generating ideas
- Apply successful answering techniques during an interview
- Develop positive mindset while handling tasks that require decision making ability

Description of Courses – Service Based

PEA306 - ANALYTICAL SKILLS-II

This course focuses on improving quantitative and reasoning skills of learners, which helps them crack various exams held in placement drives for engineering students. It also provides a base to prepare for advanced level aptitude exams.

Course Outcome:

- Reproduce the concepts learned to solve various questions of quantitative and reasoning aptitude
- Observe the data given and interpret it from the given problem
- Apply the Concepts to solve Company Specific Aptitude tests
- Analyze the problems and use logic to interpret and handle different situations
- Select the appropriate approach to initiate the given problem
- Solve quantitative and reasoning aptitude in competitive examinations

Higher Studies/Government Jobs

This pathway provides necessary inputs and guidance to prepare them for competitive exams like GATE/NET and other agency exams that forms the basis for public section jobs or higher studies.

Outcome

- Preparedness to get admission to top-notch M.Tech/ME/MS institutes.
- Opportunity to learn in a highly competitive environment and thus, develops and broadens your intellectual thought process.
- Preparation for many public sector undertakings (PSUs) such as Power Grid, IOCL etc.

Description of Courses – Higher Studies/Govt Jobs

PEA305 - ANALYTICAL SKILLS-I

This course focuses on improving quantitative and reasoning skills of learners, which helps them crack various exams held in placement drives for engineering students. It also provides a base to prepare for advanced level aptitude exams.

Course Outcome:

- Reproduce the concepts learned to solve various questions of quantitative and reasoning aptitude
- Observe the data given and interpret it from the given problem
- Apply the Concepts to solve Company Specific Aptitude tests
- Analyze the problems and use logic to interpret and handle different situations
- Select the appropriate approach to initiate the given problem
- Solve quantitative and reasoning aptitude in competitive examinations

Description of Courses – Higher Studies/Govt Jobs

CSE333 - COMBINATORIAL STUDIES-I

This is an exclusively designed course for IES, GATE, SSC - Prelims and Mains. This course shows the importance of mathematics in an engineering career by demonstrating how simple engineering problems can be described and methodically analyzed.

Course Outcome:

- Practice all the mathematical theories and concepts important for a computer science engineer.
- Identify the utility of mathematics in higher studies.
- Score good marks in higher studies related competitive exam like GATE.
- Evaluate different mathematical theories related to Discrete Mathematics, Linear Algebra, Calculus, and Probability.

Description of Courses – Higher Studies/Govt Jobs

CSE334 - COMBINATORIAL STUDIES-II

Course provides insight into major Information Technology subjects that constitute higher denomination in GATE, IES, PSU, SSC and provide students in depth knowledge to clear the fundamental concepts of CSE-IT domain.

Course Outcome:

- Assess their conceptual knowledge of all major algorithms of searching and sorting.
- Analyze various data structures used for storage.
- Measure their technical knowledge and understanding in the field of theory of computation.
- Examine lexical analyzer and parser generator tools working.
- Solve critical technical problems related to operating systems.
- Formulate problem solutions and understand deep concepts of C language.

Description of Courses – Higher Studies/Govt Jobs

CSE335 - COMBINATORIAL STUDIES-III

Course provides insight into major Information Technology subjects that constitute higher denomination in GATE, IES, PSU, SSC and provide students in depth knowledge to clear the fundamental concepts of CSE-IT domain.

Course Outcome:

- Practice critical technical problems related to combinational and sequential circuits in digital logic
- Understand various addressing modes, concept of memory hierarchy and I/O interface in computer architecture
- Practice critical problems related to computer networks and security
- Formulate problem solutions and understand deep concepts related to RDBMS and Structured Query Language (SQL)

Special Requirements

- Mathematics would be part of the pathway and students must have good understanding of it.
- Must have done Engineering Mathematics.

Product Based

This pathway covers data structures & algorithms deeply with problem solving. Applications have the requirement to write code that results in time and space efficiency.

Outcome

- Code formulation by designing optimal code
- Comparison of two different solutions on the basis of time and space complexity

Description of Courses – Product Based

CSE329 - PRELUDE TO COMPETITIVE CODING

Course provides an introduction to competitive programming by introducing the students to the programming constructs data structures and algorithmic paradigms. The main focus of the course is to build intuition for problem solving in current computing environment.

Course Outcome:

- Relate the theoretical knowledge and insights gained to formulate working code
- Revise time and space efficient algorithms to solve abundant ubiquitous problems
- Identify the intricacies present in the design of a solution to devise an optimal solution
- Deduce the appropriate and efficient algorithms and data structures for optimal solution to the problems at hand
- Extend and utilize the knowledge base of various algorithmic paradigms to build optimized solutions to real world problems
- Validate the logic building and code formulation by designing optimal code capable of passing various test cases

Description of Courses – Product Based

CSE330 - COMPETITIVE CODING APPROACHES-TECHNIQUES

Course emphasize on best programming practices which leads to complexity control using advance coding approach with effective and logical techniques. Student will learn to reframe and optimize the problem solutions.

Course Outcome:

- Analyze the time and memory complexity of an algorithm or a structure
- Test primality efficiently
- Use nlogn sorting techniques and recursion in effective way
- Apply Tabulation and Memorization in standard Dynamic Programming problems

Description of Courses – Product Based

PES319 - SOFT SKILLS-II

The course helps the students to build impactful personality through personal grooming. The students are trained to communicate with influence. Students are trained on group discussions and interview skills to help them in respective career pathways.

Course Outcome:

- Prepare powerful brand for career progression
- Articulate fluently with confidence
- Demonstrate critical thinking while generating ideas
- Apply successful answering techniques during an interview
- Develop positive mindset while handling tasks that require decision making ability

Description of Courses – Product Based

CSE331 - CODING PEARLS

The course builds on prelude to competitive programming and aims to make the students better at problem solving by application of programming constructs, efficient data structures and algorithms. Student will redefine and explore the existing problems solutions

Course Outcome:

- Relate the theoretical knowledge and insights gained to formulate working code
- Revise time and space efficient algorithms to solve abundant ubiquitous problems
- Identify the intricacies present in the design of a solution to devise an optimal solution
- Deduce the appropriate and efficient algorithms and data structures for optimal solution to the problems at hand
- Extend and utilize the knowledge base of various algorithmic paradigms to build optimized solutions to real world problems
- Validate the logic building and code formulation by designing optimal code capable of passing various test cases

Entrepreneurship

Entrepreneurship is **the ability and readiness to develop, organize and run a business enterprise, along with any of** its uncertainties in order to make a profit.This pathway provides necessary inputs and guidance to prepare them for all the entrepreneurship related skills.

Outcome:

- Student will get the opportunity to sharpen entrepreneurial competencies.
- Student will get Clarity about the business idea.
- Student will be able to assess market potential for the product or service.
- Enhancement of skills in preparing business plan.