

## ANNEXURE – I

# St. Vincent Pallotti College of Engineering & Technology, Nagpur

## Department of Vocation (B. VOC)

Teaching Scheme for B.VOC Third Year 2025-26

### SEMESTER V (Virtual Reality & Augmented Reality)

Sr. No.	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
			L	T	P		Continual Assessment	End Sem. Examination	Total
<b>General Education Component (GEC)</b>									
1	25BV501T	Entrepreneurship Skills - I	3			3	40	60	100
2	25BV502T	Employability Skills - II	3			3	40	60	100
3	25BV501P	Entrepreneurship Skills – I Lab			3	3	25	25	50
4	25BV502P	Employability Skills - II Lab			3	3	25	25	50
<b>Total – GEC</b>			<b>6</b>		<b>6</b>	<b>12</b>	<b>130</b>	<b>170</b>	<b>300</b>
<b>Skill Education Component (SEC)</b>									
5	25VA503S	AR-VR DEVELOPER(*)			8	8	50	100 (**)	150
6	25VA504S	Internship			10	10	25	75	100
<b>Total – SEC</b>			<b>6</b>		<b>18</b>	<b>18</b>	<b>75</b>	<b>175</b>	<b>250</b>
<b>Grand Total</b>			<b>6</b>		<b>24</b>	<b>30</b>	<b>205</b>	<b>345</b>	<b>550</b>

Assessment Competent Authority: General Education Component, 25BV501T/P, 25BV502T/P, Skill Component 25VA504S: by college,

(\*) AR-VR DEVELOPER: MES/Q0509, MES/N2513, MES/N2515, MES/N2516, ME/N0104, MES/N2816

(\*\*) 25VA503S Assessment by Sector Skill Council – MESC

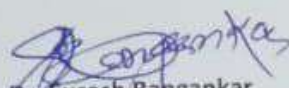
### SEMESTER VI (Virtual Reality & Augmented Reality)


Sr. No.	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
			L	T	P		Continual Assessment	End Sem. Examination	Total
<b>General Education Component (GEC)</b>									
1	25BV601T	Entrepreneurship Skills - II	3			3	40	60	100
2	25BV602T	Employability Skills - III	3			3	40	60	100
3	25BV601P	Entrepreneurship Skills – II Lab			3	3	25	25	50
4	25BV602P	Employability Skills - III Lab			3	3	25	25	50
<b>Total – GEC</b>			<b>6</b>		<b>6</b>	<b>12</b>	<b>130</b>	<b>170</b>	<b>300</b>
<b>Skill Education Component (SEC)</b>									
5	25VA603S	AR-VR PRODUCER(*)			8	8	50	100 (**)	150
6	25VA604S	Project			10	10	25	75	100
<b>Total – SEC</b>			<b>6</b>		<b>18</b>	<b>18</b>	<b>75</b>	<b>175</b>	<b>250</b>
<b>Grand Total</b>			<b>6</b>		<b>24</b>	<b>30</b>	<b>205</b>	<b>345</b>	<b>550</b>


Assessment Competent Authority: General Education Component 25BV601T/P, 25BV602T/P; Skill Component 25VA604S: by college

25VA603S (\*) Assessment by Sector Skill Council – MESC

25VA603S (\*\*) AR-VR PRODUCER: MES/Q2509, MES/N2865 TO MES/N2872.

  
Dr. Suresh Rangankar  
BOS, Chairman (B.VOC)

  
Dr. Pramod Lanjewar  
Dean (Academics)

  
Dr. Vijay Wadhaj  
Principal



**ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR**

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**B.VOC. Scheme of Examination & Syllabus 2025-26**

**VIRTUAL REALITY & AUGMENTED REALITY**

**FIFTH SEMESTER**

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25BV501T	Entrepreneurship Skills-I	3			3	40	60	100

Course Objectives	Course Outcomes
<ol style="list-style-type: none"> <li>To empower an entrepreneurial mindset and business skills to enhance job prospects and develop entrepreneurship skills.</li> <li>To introduce the necessary skills to develop ventures beyond the idea/prototype stage.</li> </ol>	<ol style="list-style-type: none"> <li>Develop an entrepreneurial mindset by applying the five effectuation principles –Bird in hand Affordable Loss, Lemonade, Patchwork Quilt or Crazy Quilt, and Pilot-in-the-Plane.</li> <li>Create your own business model using the Lean Canvas template</li> </ol>

**Unit I : Self Discovery:** [10 Hrs]

Self Discovery: Find your flow (passion), Principles of Effectuation, Selecting Venture Team, Opportunity Discovery: Identifying problem worth solving.

**Unit II : Design Thinking** [10 Hrs]

Design Thinking, Look for Solutions. Customer & Solution: Customers & Markets, Value Proposition Canvas, Basics of Business Model and Lean Approach, Craft your Business Model.

**Unit III : Case Study 1** [8 Hrs]

Verloop Case Study: Genesis of the idea, problem statement, market selection, Market segments, strategy implemented.

Desi Hangover Case Study : Genesis of the idea, problem statement, market selection, market opportunists , Market segment, demand validation.

**Unit IV : Case Study 2** [8 Hrs]

Honey Twigs Case Study: Genesis of the idea, problem statement, market selection, market opportunists, categorize the problem, demand validation.

Inzipira Case Study : Genesis of the idea, problem statement, market selection, product features comparison like Product Benefits - UVP, Price, Branding, Market Review, key competitive advantages, 2\*2 matrix on Create, Enhance, Reduce, Eliminate

NUOS Home Automation Case Study: Problem Identification, identify the type of Business Model, estimating the market size, Create the Lean Canvas

**Text Books**

S.N	Title	Authors	Edition	Publisher
1	Entrepreneurial Development	S.S.Khanka	2011	S. Chand
2	Entrepreneurial Development	E. Gordon, K. Natrajan	6 <sup>th</sup> revised	Himalaya Publishing House

		Oct-2022	1	Applicable for 2025-26
Chairman - BoS	Dean – Academics	Date of Release	Version	

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25BV501P	Entrepreneurship skills-I Lab			3	3	25	25	50

Course Objectives	Course Outcomes
To develop entrepreneurial abilities by providing background information about support systems, skill sets, financial and risk covering institutions and other for building an enterprise so that future budding entrepreneurs can make right decisions for starting and running a venture.	<ol style="list-style-type: none"><li>1. To build foundation of Entrepreneurship Development and its theories.</li><li>2. To explore entrepreneurial skills and management function.</li><li>3. To identify the type of entrepreneur and the steps involved in an entrepreneurial venture.</li><li>4. To understand various steps involved in starting a venture and to explore marketing methods &amp; new trends in entrepreneurship.</li></ol>

**List of Practical / Activities**



1. Identify problem worth solving
2. Propose solution based on Design Thinking - Desirability, Feasibility and viability
3. Identify customer segments and early adopters
4. Propose Unique Value Proposition
5. Elaborate channels of reaching out to the customers
6. Enlist and explain in brief the cost segment
7. Enlist and explain revenue segment
8. Sketch Lean canvas and list 7 key elements

**Text Books**

S.N	Title	Authors	Edition	Publisher
1	Entrepreneurial Development	Khanka S.S.	Revised	S. Chand
2	Entrepreneurship Development	Sangeeta Sharma	2nd	PHI

**Reference Books**

S.N	Title	Authors	Edition	Publisher
1	Entrepreneurship Development and Small Business Enterprises	Poornima M. Charantimath	3rd	Pearson

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**VIRTUAL REALITY & AUGMENTED REALITY**

**FIFTH SEMESTER**

COURSE CODE	COURSE NAME	TH	PR	CREDITS	EVALUATION		
					CA	ESE	TOTAL
25BV502T	Employability Skills-II	3		3	40	60	100

COURSE OBJECTIVES	COURSE OUTCOMES
<ul style="list-style-type: none"> <li>To understand Data Structures &amp; Algorithms</li> <li>Develop proficiency in key aptitude areas, such as quantitative aptitude, logical reasoning, and verbal ability.</li> </ul>	<p><b>At the end of the course, students will be able to:</b></p> <p><b>CO1.</b> Understand Data Structures &amp; Algorithms  <b>CO2.</b> Understand Linked Lists &amp; searching techniques  <b>CO3.</b> Understand Structures sorting  <b>CO4:</b> Understand Graph and Tree Data Structure</p>

<b>UNIT I: Data Structures &amp; Algorithms</b>	[10 HRS]
Overview, Algorithms Basics, Programming, Data Structures & Algorithm Basic Concepts, Data Structures and Types, Data Structures and Algorithms – Arrays.	

<b>UNIT II: Linked Lists &amp; searching techniques</b>	[15 HRS]
Introduction to stack & Queue, Linked List basics, Doubly linked list, Circular Linked list, Stack & Queue, Searching Techniques, Linear search, Binary Search, Interpolation Search, Hash table	

<b>UNIT III: Data Structure Sorting</b>	[10 HRS]
Sorting Techniques, Algorithms ,Bubble Sort, Insertion sort, Selection Sort, Merge Sort, Shell Sort, Quick Sort.	

<b>UNIT IV: Graph and Tree Data Structure</b>	[15 HRS]
Depth First Traversal, Breadth first Traversal, Tree Data Structure ,Tree Traversal, Binary Search tree, AVL tree, B tree, Spanning tree, Tries, Heap.	

**TEXT/ REFERENCE BOOKS**

S.N	Title	Authors	Edition	Publisher
1	Introduction to Algorithms	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein.	3rd	PHI
2.	Data structures & Algorithms made easy	Narsimha Karumanchi	1st	Career monk
3.	Data Structure & algorithms	Prof. Dippanita Mondal	1st	Everest publishing house

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**FIFTH SEMESTER**

COURSE CODE	COURSE NAME	TH	PR	CREDITS	EVALUATION		
					CA	ESE	TOTAL
25BV502P	Employability Skills-II Lab		3	3	25	25	50

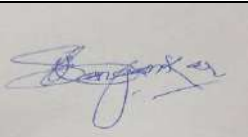

COURSE OBJECTIVES	COURSE OUTCOMES
<ul style="list-style-type: none"> <li>To understand Data Structures &amp; Algorithms</li> <li>To learn a practical approach of Data structures.</li> </ul>	<p><b>At the end of the course, students will be able to:</b></p> <p><b>CO1.</b> Understand Data Structures &amp; Algorithms  <b>CO2.</b> Understand Linked Lists &amp; searching techniques  <b>CO3.</b> Understand Structures sorting  <b>CO4:</b> Understand Graph and Tree Data Structure</p>

**List of Practical :**

- Write a program using data structure arrays for Insertion in an array element
  - At the beginning
  - At the end
  - At any given index of an array.
- Write a program using data structure arrays for deletion in an array element
  - At the beginning
  - At the end
- Write a function that will concatenate two circularly linked lists, producing one circularly linked list.
- Write a class that implements Bubble sorting algorithm on a set of 25 numbers.
- Write a template class for sorting method. Using this class write a test program for sorting using different datatypes.
- Implement the following Tree class member function Bool empty () const;
- Program on Tree traversal.
- Program on linear search and Binary search.

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25VA503S	AR-VR DEVELOPER			8	8	50	100	150



Course Objectives	Course Outcomes
To understand the concepts of Virtual Reality & Augmented reality	To learn the basics of Virtual Reality & Augmented reality To understand principles of Virtual Reality in education.
<b>Unit I : Introduction to Virtual Reality &amp; Augmented reality</b>	<b>[15 Hrs]</b>
The History and Evolution of Virtual Reality, Innovating with Virtual Reality in the Classroom Understanding the Basics of Augmented Reality, Understanding the Basics of Virtual Reality, Understanding the Basics of Mixed Reality, Understanding the Basics of Extended Reality	
<b>Unit II :</b>	<b>[25 Hrs]</b>
Virtual Reality in sectors - Education, Retail and Tourism, Virtual Reality in sectors - Healthcare, Defence and automotive, Virtual Reality in sectors - Film, Entertainment, Fashion and Gaming	
<b>Unit III :</b>	<b>[25 Hrs]</b>
Virtual Reality for Active Learning, Design principles for Virtual Reality in education, Creating Virtual Reality Experiences for the Classroom.	
<b>Unit IV :</b>	<b>[25 Hrs]</b>
Capturing 360-degree Video, Creating Interactive 360-degree Learning Experiences, 360-degree Video Editing, Virtual Reality Input Devices and Head-Mounted Displays, Virtual Reality Software Development Kits, Unity and Unreal Engine for Virtual Reality Development.	

**Text Books**

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