



## **STUDENT PROJECTS**

### **PROJECT PHASE 1**

Department: CD		Semester: 6	Academic Year: 2024–25	
I	Proposed Title of the Project:		Web-Based Automatic Timetable Scheduler for Schools & Colleges	
	Area of Specialization/Stream		Web Application	
	Mapping with POs & PSOs			
II	Name of guide:		Prof. Chaithanya D	
III	Name of Team Members (Not more than four students in a batch):			
	Sl. No.	Name	USN	Contact No.
	1	Gaurav G Alva	4VP22CD019	+91 7259130756
	2	Harshit M Naik	4VP22CD022	+91 7975517211
	3	Prapthi J P	4VP22CD037	+91 8660960756
	4	Supreetha N S	4VP22CD058	+91 95359 65726
IV	Introduction			
	A college timetable is essential for organizing lectures, lab sessions, and faculty assignments while ensuring smooth coordination of resources. Creating a timetable for multiple subjects manually while satisfying all constraints is a challenging and time-consuming task that often leads to errors, scheduling conflicts, and inefficient resource allocation. In the traditional method, coordinators must manually manage faculty availability, classroom assignments, and student course distribution, making the process tedious and prone to clashes and resistant to last-minute changes. By automating the timetable generation process, institutions can optimize scheduling, minimize manual effort, and ensure a seamless, conflict-free academic experience for both students and faculty.			
	Objectives of the project			
	<ul style="list-style-type: none"><li>To develop a system that simplifies the process of timetable scheduling for institutions by understanding the requirements of the course.</li><li>This system reduces the burden of the coordinator, reducing the conflicts like overlapping classes, overlapping labs etc.,</li><li>To develop a timetable generator that satisfies the scheduling needs based on the faculty workload, course structures and institutional policies.</li><li>To improve decision-making by offering a user-friendly interface for administrators to input constraints, review timetables, and make necessary adjustments before finalising schedules.</li></ul>			
V	Methodology			
	Automatic timetable generation involves several approaches, including <b>constraint satisfaction</b> , <b>genetic algorithms</b> , and local search procedures. <ul style="list-style-type: none"><li><b>Constraint Programming (CP)</b> A clear statement of constraints makes the program easy to adjust. Timetable constraints are managed through constant propagation, which minimizes domains of variables, coupled with backtracking search.</li><li><b>Genetic Algorithms (GA)</b> These algorithms use concepts such as chromosome representation, initial population, selection, crossover, and mutation to find optimal solutions. A fitness function is used to evaluate the quality of potential solutions.</li></ul> The design of timetable generation includes several elements: <ul style="list-style-type: none"><li>Consideration for lower semester timetables when creating higher semester timetables.</li></ul>			



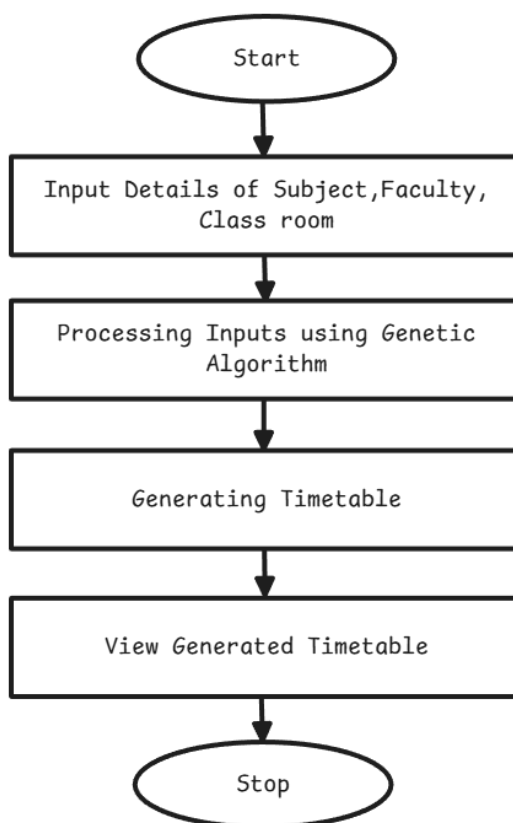
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- Faculty details.
- Workload details based on faculty designation.
- Subject details, including subject name and code.
- Faculty and subject allotment based on time slots.
- Details of theory and lab courses handled by each faculty.

The typical workflow involves the admin modifying details of students, faculty, and subjects; generating the timetable by providing input such as subject, faculty, and type and updating the timetable. The system then generates a timetable without clashes, satisfying all constraints, and allocates appropriate labs or classes. Students and faculty can then view the timetable through their accounts.

- **Requirements:**
  - Identifying the requirements of the Timetable generation process.
  - Details about the class room, subject and faculty.
- **Design and Development:**
  - User friendly interface for uploading details of class room, subject and faculty.
  - Using basic HTML, CSS and Django and other libraries for development.
- **Deployment:**
  - Deploying the System in the Server / Cloud platform (AWS or Google Cloud).
  - GitHub for managing the Code.

Flow Chart Diagram of Automatic Timetable Generator





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	<p>Activity Diagram of Automatic Timetable Generator</p> <pre> graph TD     Start(( )) --&gt; AdminLogin[Admin Login]     AdminLogin -- valid login --&gt; HomePage[Home Page]     AdminLogin -- Invalid Login --&gt; Terminate[Terminate]     HomePage -- Adding Course Details --&gt; CourseDetails[Course Details]     CourseDetails -- Inserting Department --&gt; DeptBranch[Dept / Branch]     DeptBranch -- Collecting Faculty Details --&gt; FacultyDetails[Faculty Details]     FacultyDetails -- Adding Time for each period --&gt; TimingsConstraints[Timings Constraints for each period]     TimingsConstraints -- Generating Timetable --&gt; GenerateTimetable[Generate Timetable using Algorithm]     GenerateTimetable --&gt; ViewTimetable[View Timetable]     ViewTimetable --&gt; Logout[Logout]     Logout -- Session Termination --&gt; Terminate     HomePage -- Viewing timetable after generating --&gt; ViewTimetable     ViewTimetable -- Session End --&gt; End(( ))   </pre>										
<b>VI</b>	<b>Expected Outcome of the project</b>										
	<p>The automated timetable generation system will eliminate the challenges of manual scheduling by reducing the workload for the coordinator and improves efficiency. The system smartly manages constraints such as faculty availability, classroom allocation based on student course selection, minimizes the scheduling conflicts and optimizes resource utilization ensuring adaptability to last minute changes. Ultimately, the project will contribute to a seamless and well-organized scheduling experience, improving time management and academic coordination in educational institutions.</p>										
<b>VII</b>	<b>Application of the project</b>										
	<ul style="list-style-type: none"> <li>• Educational Institutions like colleges, universities and schools.</li> <li>• Training Programs</li> <li>• Online learning platforms</li> <li>• Research institutions</li> </ul>										
<b>VIII</b>	<p><b>Does the project proposed is relevant to any of the Industry or Institution in and around your area: Yes</b>          School, Colleges and Coaching Institutions.          Vivekananda College of Engineering &amp; Technology</p>										
<b>IX</b>	<b>Budget</b>										
	<table border="1"> <tr> <td>Materials Cost:</td> <td>--</td> </tr> <tr> <td>Labour Charges:</td> <td>--</td> </tr> <tr> <td>Any other cost:</td> <td>5000</td> </tr> <tr> <td>Total:</td> <td><b>5000</b></td> </tr> <tr> <td>Source for Funds:</td> <td>Self</td> </tr> </table>	Materials Cost:	--	Labour Charges:	--	Any other cost:	5000	Total:	<b>5000</b>	Source for Funds:	Self
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X	Schedule for Major Activities		Time
			Plan (Last date)
	Date of commencement of project: (Project team formation details submitted to Dept project coordinator)		18-02-2025
	Project Plan (Synopsis) submission to the Department		25-02-2025
	Review of the Project Plan by Guide/Project Coordinators/HoD		25-02-2025 to 28-02-2025
	Presentation 1: Presentation of Project Plan (Synopsis)		1 <sup>st</sup> Week of March 2025
	Submission of Progress report: Chapter 1: Introduction & Chapter 2: Literature review – Problem Statement, Requirements Specification and Analysis (soft copy)		18-04-2025
	Project Phase-I Presentation 2: Introduction & Literature Review-Problem Statement, Requirements Specification and Analysis.		Between 4 <sup>th</sup> Week of April 2025 to 1 <sup>st</sup> Week of May 2025
	Submission of soft copy of Project Report		Before 10-05-2025
	Date of completion of the Project Phase-I report on Introduction & Literature Review-Problem Statement/ Requirements Specification and Analysis.		20-05-2025
Note: Above schedule may change as per VTU academic calendar.			
XI	Team members		
	Student(s)		Signature with date
	1. Gaurav G Alva		
	2. Harshit M Naik		
	3. Prapthi J P		
	4. Supreetha N S		
XII	Guidance		
	Guide allotted:		Signature (s) with date
	1. Guide:	Prof. Chaithanya D	