School of Information and Electronic Engineering Management of Undergraduate Course Hours (Trial)

Chapter 1: General Provisions

Article 1: In order to standardize the management of undergraduate course hours in our college, optimize the allocation of learning resources, scientifically assess students' academic burden, and promote educational and teaching reform, this method is formulated in accordance with the relevant teaching management regulations of the school and the "2025 Talent Cultivation Program", in light of the actual situation of our college.

Article 2: This regulation applies to the planning, application, review, implementation and supervision of class hours for all undergraduate major courses in our college. It aims to establish a transparent and traceable class hour management mechanism to ensure the scientific, reasonable and enforceable nature of course design and to achieve precise assessment and dynamic regulation of students' academic burden.

Article 3: The management of class hours follows the principle of "student-centered, outcome-oriented, and continuous improvement" to ensure students' learning outcomes and promote the coordinated development of their knowledge, ability and quality.

Chapter 2: Composition and Calculation Standards of Class Hours

Article 4: The total course hours consist of two parts: contact hours and self-study hours.

(1) Contact hours: Refers to the time of face-to-face teaching activities such as theoretical lectures, experiments, practical training, and classroom discussions led by teachers as stipulated in the talent training program.

(2) Self-study hours: It refers to the time that teachers require students to independently complete course-related learning activities based on the course objectives and teaching content. It mainly includes:

● court-related activities: preview before class, homework after class, review and summary, exam preparation, etc.

● Independent exploration activities: Information search, software learning, experimental design, case analysis, project development, report writing, etc.

Article 5: The rules for calculating hours and converting credits are as follows:

Total hours = Contact hours + self-study hours.

ECTS credits (European Credit Recognition System credits) = total credits / 30.

Article 6: There is an upper limit on the total academic load of each student for each semester:

The total class hours per semester should in principle not exceed 1,120 (calculated based on 20 teaching weeks per semester). Converted to daily study load, in principle, no more than 8 hours per day (including contact hours and self-study hours) to ensure students' physical and mental health and self-study space.

Chapter 3: Procedures for Reporting and Reviewing Class Hours

Article 7: Before the start of the new semester, the course instructor shall, in accordance with the course syllabus and teaching objectives, formulate detailed "Course Hour Allocation Rules" (template see Annex 1), clearly stating the allocation of contact hours and self-study hours for each knowledge unit and teaching link, and explaining the content, form and supervision and assessment methods of self-study.

Article 8: The Detailed Rules for the Allocation of class Hours shall be submitted to the Teaching guidance Committee of the college for review. The key points of review include:

(1) The fit between the allocation of class hours and the course objectives.

(2) Reasonableness and operability of self-study hours.

(3) The feasibility and effectiveness of the supervision and assessment methods.

(4) Whether the total course hours meet the upper limit of academic burden for the semester.

Article 9: The approved "Detailed Rules for the Allocation of Class Hours" shall be made public to students as a basis for students to plan their learning progress and for teachers to conduct process evaluations.

Chapter 4: Supervision, Evaluation and Feedback Mechanism

Article 10: The College shall establish a regular monitoring mechanism for class hours.

● Mid-term survey: In the middle of the semester, through questionnaires, symposiums, etc., to understand students' feedback on the actual time spent on each course (especially self-study hours).

● Log sampling: Encourage and regularly sample and review students' study logs or time records to assess the reasonableness of self-study hours arrangements.

● Academic analysis: Analyze the effectiveness of the class hour arrangement by combining multi-dimensional data such as course grades, quality of assignment completion, and student feedback.

Article 11: If monitoring reveals that the majority of students report that the actual hours spent on a certain course are consistently significantly higher or lower than the planned hours by more than 20%, the course group must conduct an analysis in a timely manner. If it is confirmed that the plan is unreasonable, after approval by the college, adjustments and optimizations should be made to the allocation of class hours for subsequent teaching cycles and recorded.

Article 12: Teachers shall use information platforms (such as Rain Classroom, online course platform, etc.), homework correction, code review, experiment acceptance, report review, random tests and other methods to effectively supervise and evaluate students' self-study process and results to ensure that self-study hours are implemented.

Chapter 5: Measures for the Recognition of Class Hours for Subject Competitions and Innovation Projects

Article 13: In order to encourage students' innovative practice, practical activities such as subject competitions and innovation and entrepreneurship projects shall be incorporated into the course self-study hours management system, and a recognition system of "basic hours + reward hours" shall be implemented.

Article 14: Recognition Process

(1) Pre-registration: After participating in the competition or initiating the project, students shall submit the "Information and Electronic Engineering School Discipline Competition/Innovation Project Credit Hours Recognition and Registration Form" (Annex 2) to the relevant course instructor, along with the project plan or competition description, clarifying the connection between the project content and the course teaching content.

(2) Correlation determination: The course teacher determines the correlation coefficient based on the extent to which the project applies the core knowledge and skills of the course:

● High relevance (coefficient 1.0) : The core of the project is entirely centered around the core content of the course.

● Medium relevance (0.6) : The project's master or main technology is beyond the scope of the course but deeply applies the core ideas, methods, or underlying programming skills taught in the course.

● Low relevance (coefficient 0.3) : Only a small amount or marginal involvement of course knowledge.

(3) Material submission and review: At the end of the project, students submit a complete "Practical project learning package" including: engineering log (recording effective input time), technical documentation, source code, presentation video/physical photos,

summary report. The course instructor may organize a brief defense for review.

(4) Recognition and entry of class hours: After the teacher reviews the materials, calculate and confirm the number of deductible class hours, report to the academic affairs office of the college for record, and count it into the self-study class hours of the student for the semester of the course.

Article 15: Rules for Calculating Class Hours

(1) Basic hours: Measure effective learning engagement in the project practice process.

● Calculation formula: Basic recognition hours = Effective engagement time reviewed and recognized by the teacher * Project-course correlation coefficient

Effective investment time is determined based on multiple dimensions such as engineering logs, technical complexity, and achievement completion. False records will be discounted.

(2) Reward hours: An additional incentive for achieving excellent results.

● Calculation formula: Reward recognition hours = Reward grade benchmark hours × Project and course correlation coefficient

The benchmark class hours for reward levels are stipulated as follows:

School-level/region-level awards: 10 hours

Provincial/Ministerial awards: 20 credits

National awards: 40 credit hours

(3) A formal certificate or public notice is required for the award.

Article 16: The hours recognized through competitions or projects shall mainly be used to offset the self-study hours required for the corresponding course in the current semester. If there is a surplus after the deduction, it cannot be accumulated across courses or semesters.

Chapter 6: Supplementary Provisions

Article 17: This regulation shall be interpreted by the Teaching Steering Committee of the School of Information and Electronic Engineering.

Article 18: This regulation shall be implemented on a trial basis as of the date of its promulgation.

Annex:

1. Reference Template for the Rules on the Allocation of Course Hours

2. "Information and Electronic Engineering School Discipline Competition/Innovation Project Credit Hour Recognition and Filing Form"

Annex 1: Reference Template for the Allocation of Class Hours

"Principle and Application of Microcontroller"Class Hour allocation details

Total hours = contact hours + self-study hours

(Contact hours are the total hours of the course in the 2025 version of the talent training program, self-study hours are the hours that the instructor requires students to study independently, which may include court-related activities: previewing, homework, review, exam preparation, etc. It also includes self-exploration: online search for information, experimental design, case analysis and other activities related to course knowledge);

ECTS credits (European credits)= Total hours /30

Knowledge Unit (Chapter)	Knowledge Points	Contact hours	Self-study hours	Self-study content	Self-study hours supervision methods
Theoretical Teaching					
1. Overview and Preliminary Knowledge	1. Development and application of microcontrollers; 2. Microcontroller models; 3. Number system and code system conversion, etc.	2	0.5	1. Post-class homework: Complete exercises on number system and code system conversion. (0.5 class hour)	1. Homework correction.

Knowledge Unit (Chapter)	Knowledge Points	Contact hours	Self-study hours	Self-study content	Self-study hours supervision methods
2. Hardware Structure of Microcontrollers	1. Overall structure and internal resources; 2. Power supply and external pins, control pins, input/output pins; 3. Clock circuit, reset circuit and timing sequence; 4. Data memory, program memory.	4	3	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (2 class hours) 2. Post-class homework: Submit hand-drawn minimum system circuit diagrams and data memory space distribution diagrams. (1 class hour)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework correction. 3. Quiz: Conduct an online or written quiz on pin functions and memory structure after the chapter ends.
3. Instruction Set	1. Assembly language instruction format; 2. Assembly pseudo-instructions; 3. Addressing modes; 4. Instruction set and application; 5. Introduction to assembly language programming.	8	7	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (5 class hours) 2. Post-class homework: Complete exercises corresponding to the instruction set. (2 class hours)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework correction. 3. In-class random quiz: Test review effectiveness.
4. C51 Language Basics	1. C51 data types and storage methods, storage types and storage relationships; 2. Definition method of C51 interrupt service functions; 3. Mixed programming of assembly language and C51; 4. Environment setup	3	4.5	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (2 class hours) 2. Post-class homework: Complete exercises related to C51 program structure and interrupt service functions. (0.5 class hour) 3. Environment setup: Install Keil software and Proteus software, and learn basic software knowledge. (2 class hours)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework correction. 3. Check whether students have completed the installation of relevant software and environment setup on their computers.

Knowledge Unit (Chapter)	Knowledge Points	Contact hours	Self-study hours	Self-study content	Self-study hours supervision methods
5. Hardware Resources and Applications	Parallel I/O Ports and Their Applications	4	4	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (2 class hours) 2. Post-class homework: Complete exercises related to I/O ports. (0.5 class hour) 3. Reproduce and annotate code: Light up LEDs, control LED flipping with keys (1.5 class hours)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework revision. 3. Code comment review: Randomly check submitted after-class program codes to evaluate the detail and accuracy of comments.
	Interrupt System	4	5	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (2 class hours) 2. Post-class homework: Complete exercises related to the interrupt system. (1 class hour) 3. Reproduce and annotate code: Realize LED flipping with external interrupts (2 class hours)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework revision. 3. Code comment review: Randomly check submitted after-class program codes to evaluate the detail and accuracy of comments.
	Timers/Counters	4	5.5	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (2 class hours) 2. Post-class homework: Complete exercises related to timers. (1 class hour) 3. Reproduce and annotate code: Output square waves with timer interrupts. (2.5 class hours)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework revision. 3. Code comment review: Randomly check submitted after-class program codes to evaluate the detail and accuracy of comments.

Knowledge Unit (Chapter)	Knowledge Points	Contact hours	Self-study hours	Self-study content	Self-study hours supervision methods
	Serial Interface and Serial Communication	5	5.5	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (2 class hours) 2. Post-class homework: Complete exercises related to timers. (0.5 class hour) 3. Reproduce and annotate code: Dual-machine communication. (3 class hours)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework revision. 3. Code comment review: Randomly check submitted after-class program codes to evaluate the detail and accuracy of comments.
6. Parallel Expansion Interface Technology	1. Bus parallel expansion methods, memory interface expansion; 2. Input/output parallel interface expansion, designing programs related to interface expansion; 3. Display and keyboard interface expansion.	6	8	1. Pre-class preview: Watch microlecture videos on Rain Classroom and preview lecture PPTs. (6 class hours) 2. Post-class homework: Complete exercises related to interface expansion. (2 class hours)	1. Rain Classroom Platform automatically records video viewing progress. 2. Homework revision. 3. In-class random quiz: Test review effectiveness.
7. Final Exam	Students review for the exam	0	12	1. Review key knowledge points and consolidate difficult points; 2. Review in-class experiments, etc.	1. Form study groups for peer supervision: Group members agree on daily study time and tasks, establish WeChat groups, and check in daily for record. 2. Instructor supervision: Set fixed offline or online consultation hours. Judge the overall review situation of the class through the frequency and depth of students' questions. 3. Counselor supervision: Visit student dormitories during the review week to supervise and

Knowledge Unit (Chapter)	Knowledge Points	Contact hours	Self-study hours	Self-study content	Self-study hours supervision methods
					check.
Subtotal (Theoretical Teaching)		40	55		
Practical Teaching					
1. Experiment 1 (Confirmatory)	Application of I/O Ports and Interface Technology: Key-Controlled Running Lights and Buzzer	4	4	1. Draw hardware schematic diagrams and preview the principles of corresponding components; (1 class hour) 2. Draw program flowcharts according to experimental requirements, build project frameworks in Keil, and write core functions for the corresponding experiments. (2 class hours) 3. Submit experimental reports: Including experimental purposes, hardware schematic diagrams, program flowcharts, core codes. Detailedly record at least 1-2 problems	1. Pre-class document check: Require submission of hardware Proteus simulation files, Keil programs and flowchart files before class; 2. On-site acceptance of experimental results; 3. Experimental report review.

Knowledge Unit (Chapter)	Knowledge Points	Contact hours	Self-study hours	Self-study content	Self-study hours supervision methods
				encountered, and explain how to analyze and solve them. (1 class hour)	
2. Experiment 2 (Design-Oriented)	Application of External Interrupts: Key-Controlled LED Lights and Digital Display	4	4	1. Draw hardware schematic diagrams and preview the principles of corresponding components; (1 class hour) 2. Draw program flowcharts according to experimental requirements, build project frameworks in Keil, and write core functions for the corresponding experiments. (2 class hours) 3. Submit experimental reports: Including experimental purposes, hardware schematic diagrams, program flowcharts, core codes. Detailedly record at least 1-2 problems encountered, and explain how to analyze and solve them. (1 class hour)	1. Pre-class document check: Require submission of hardware Proteus simulation files, Keil programs and flowchart files before class; 2. On-site acceptance of experimental results; 3. Experimental report review.
3. Experiment 3 (Design-Oriented)	Application of Timer Interrupts: Generate Timing Signals with Timers to Realize Normal Display of Electronic Stopwatches	4	5	1. Draw hardware schematic diagrams and preview the principles of corresponding components; (1 class hour) 2. Draw program flowcharts according to experimental requirements, build project frameworks in Keil, and write core functions for the corresponding experiments. (3 class hours) 3. Submit experimental reports: Including experimental purposes, hardware schematic diagrams, program flowcharts, core codes. Detailedly record at least 1-2 problems encountered, and explain how to analyze and solve them. (1 class hour)	1. Pre-class document check: Require submission of hardware Proteus simulation files, Keil programs and flowchart files before class; 2. On-site acceptance of experimental results; 3. Experimental report review.

Knowledge Unit (Chapter)	Knowledge Points	Contact hours	Self-study hours	Self-study content	Self-study hours supervision methods
4. Experiment 4 (Comprehensive)	Free Project Design: Electronic Organ, Calendar, Traffic Lights, Serial Communication (Optional)	4	8	1. Conduct project demand analysis and formulate detailed design schemes, including hardware circuit design and software program design. Draw program flowcharts, build project frameworks in Keil, and write core functions for the corresponding experiments. (5 class hours) 2. Draw hardware schematic diagrams and learn the principles of corresponding components; (2 class hours). 3. Submit project summary reports: Including project background, design scheme, implementation process, test results, etc. (1 class hour)	1. Pre-class document check: Require submission of hardware Proteus simulation files, Keil programs and flowchart files before class; 2. On-site acceptance of project results; 3. Project summary report review.
Subtotal (Practical Teaching)		16	21		
Total		56	76	**Total Hours = 132 class hours**	
Credit points (ECTS)		4.4			

Annex 2:

School of Information and Electronic Engineering Credit Hours Recognition and Filing Form for Discipline Competitions/Innovation Projects

1. Basic Information of Students			
Name		Student ID	
Major		Class	
Contact number		Email address	
2. Competition/Project Information			
Full name of the competition/project			
Organizer/project sponsor			
Entry Format	Youdaoplaceholder0 Individual project ☐ Team project (if team, please indicate your role: _____)		
Start and end time of the project	Year-month-day - year-month-day		
Apply for the name of the associated course			
Course Code		Instructor	
3. Project content and Relevance to the course			
1. Project Introduction and Objectives (Briefly describe the project background, main functions, and goals to be achieved)			

2. Core links to the course (Specifically explain which knowledge, skills and tools from the course have been applied, and estimate the proportion of course knowledge contribution.

4. Application for Credit Hour Recognition

Application Type	**Application Content**	**Notes/Basis**
Application for foundation hours	Planned total investment time (hours) : _____	Subsequent confirmation materials such as engineering logs will be required
	Expected correlation coefficient: ☐ high correlation (1.0) ☐ medium correlation (0.6) ☐ low correlation (0.3)	Self-assess based on "core connections"
Application for Reward hours (if known)	Target award level: ☐ school-level/region-level (10 hours) ☐ provincial-ministerial level (20 hours) ☐ national-level (40 hours) ☐do not apply (to be added after the competition)	Proof of award must be submitted after winning the award

5. Commitments and Materials List		
Student Commitment	I promise that the information I have filled in and the materials I have submitted are true and valid, and I accept the review and confirmation by the teacher.	Applicant's signature:
Submission List	Youdaoplaceholder0 engineering log/time record sheet ☐ project technical document/design report ☐ source code/engineering file ☐ work demonstration video or physical photo ☐ Competition award certificate (if applicable) ☐ project summary report	
6. Teacher Review and Certification Section (to be filled in by the course teacher)		
Review items	**Review opinions and determination results**	
Review of completeness of materials	☐ complete and meet the requirements ☐ incomplete and need to be supplemented: _____	
Project and course relevance determination	Recognition coefficient: ☐ 1.0 ☐ 0.6 ☐ 0.3 Reasons for recognition:	
Verification of effective input time	Verified effective time (hours) : _____ basis Verification:	
Basic class hours are calculated	Verified time _____ × coefficient _____ = _____ hours	
Verification of Awards	Award levels: ☐ school level/regional ☐ provincial and ministerial level ☐ national level ☐ unawarded Benchmark class hours: _____	
Reward hours are calculated	Base hours _____ × coefficient _____ = _____ hours	
Total recognized hours	Base _____ + reward _____ = total _____ hours	

Review teachers' comments	☐ agrees to recognize _____ hours for offsetting self-study hours of _____. ☐ does not recognize. Explanation:		
Review teacher's signature		Date of review:	

Registered and signed by the academic Affairs Office of the college

(Seal Place)

Filing date:

Instructions for filling in:

1. This form should be filled out in duplicate by the student along with the required materials. After review by the teacher and filing by the college, one copy will be kept by the student and the other by the academic affairs office.

2. All applications must be accompanied by corresponding supporting documents. Applications without materials or with false materials will not be recognized.

3. Final interpretation rights belong to the Teaching Steering Committee of the School of Information and Electronic Engineering.