

**RIH / ARIH Certification 2026  
IH Rubrics (Subject Areas)**

Serial No	Subject Area	Scope of Coverage
1	Air sampling & Instrumentation	Selection and use of direct-reading instruments and air-sampling equipment for gases, vapours, and aerosols, including instrument calibration, equipment set-up, airflow calibration, sampling strategies, and calculations related to air sampling. The measurement and monitoring of noise, ionizing radiation, non-ionizing radiation, and thermal stressors are covered under the respective subject areas.
2	Analytical Chemistry	Laboratory analytical procedures for workplace or environmental samples, together with the associated calculations. Topics include gas chromatography, liquid chromatography, mass spectrometry, wet chemical methods, visible, infrared, and ultraviolet spectrophotometry, atomic absorption and emission spectrophotometry, gravimetric methods, and microscopy. Laboratory quality assurance and quality control (QA/QC), as well as chain-of-custody procedures, are also included.
3	Basic Science	General scientific concepts include physics, chemistry, mathematics, biology, anatomy, and physiology. The syllabus also covers the properties of flammable, reactive, and incompatible chemicals, together with calculations related to the Ideal Gas Law, airborne concentrations, units of measurement, and conditions of non-standard temperature and pressure. In addition, it includes the properties, behaviour, and measurement of airborne particles.
4	Biohazards	Recognition, evaluation, and control of biological agents, including microorganisms (viruses, bacteria, fungi), allergens, toxins, and bloodborne pathogens that have the potential to cause adverse health effects and infectious diseases. Topics include workplaces with biological hazards, work-related infections, and biological risk group classifications. Biohazard containment and biosafety levels (BSLs), safety equipment, laboratory practices, disinfection and sterilization, and biological waste management are also covered.
5	Biostatistics & Epidemiology	Basic biostatistics and the statistical interpretation of exposure data for the evaluation of occupational and environmental health risks, including normal and log-normal distributions. Principles of epidemiology, including the measurement of morbidity and mortality, are covered. Topics also include the major types of epidemiological studies, including prospective and retrospective cohort studies, cross-sectional studies, case-control studies, and experimental animal studies, together with the interpretation of epidemiological data and data distributions.
6	Community Exposure	Air pollution, air pollution control and air cleaning technologies, ambient air quality assessment, emission source sampling, atmospheric dispersion of pollutants, ambient air monitoring, the health and

		environmental effects of air pollutants, and related calculations. Topics also include other industrial hygiene–related environmental subjects, such as emergency response, hazardous waste management, and the environmental fate and transport of pollutants.
7	<b>Compliance Statistics</b>	Interpretation and application of occupational exposure limits, including Permissible Exposure Limits (PELs) and Threshold Limit Values (TLVs). Topics include sampling and analytical errors, classical confidence intervals, and standardized concentration approaches for determining compliance and non-compliance with occupational exposure standards.
8	<b>Engineering Controls and Ventilation</b>	Control of chemical and physical hazard exposures through engineering measures, including local exhaust ventilation (LEV), dilution ventilation, containment, isolation, and process modification. Topics include fluid mechanics, LEV design principles, hoods and ductwork, air cleaners, exhaust fans and motors, static pressure losses, LEV system testing and evaluation, and related calculations. The engineering control of noise and vibration, ionizing and non-ionizing radiation, and thermal stressors is covered under the respective subject areas.
9	<b>Ergonomics</b>	Human factors engineering, biomechanics, musculoskeletal disorders (MSDs), cumulative trauma disorders (CTDs), and repetitive strain injuries (RSIs). Topics include the causes, symptoms, assessment, and prevention of MSDs, office ergonomics, and the application of anthropometric data to ergonomic design. Ergonomic risk assessment methods and toolkits for manual material handling and repetitive work are covered, together with the design of human–machine interfaces, including controls and displays.
10	<b>Health Risk Assessment and Hazard Communication</b>	Understanding of the principles and requirements for the interpretation and application of occupational health risk assessment guidelines, including the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), Biological Exposure Indices (BEIs), and Industrial Ventilation Guidelines, as well as relevant Singapore Standards (SSs), Codes of Practice (CPs), and guidelines published by the Ministry of Manpower (MOM) and the Workplace Safety and Health Council (WSH Council). Topics also include the principles of risk reduction and mitigation, the hierarchy of controls, control banding, the Globally Harmonized System (GHS) for hazard communication, and employee education and training.
11	<b>Indoor Air Quality</b>	Understanding of indoor air quality (IAQ) principles, parameters, and assessment, including the thermal environment, chemical contaminants, radiological hazards, biological contaminants (bioaerosols and microorganisms), and particulate matter. Understanding of sick building syndrome (SBS) and building-related illness (BRI), as well as IAQ standards and guidelines, including air temperature, relative humidity, and carbon dioxide (CO <sub>2</sub> ) concentration requirements specified in SS 554 – Indoor Air Quality for Air-Conditioned Buildings. Understanding of IAQ control and mitigation

		measures, including source control, air cleaning and purification technologies, dilution ventilation through outdoor air supply, and ventilation system management. Competence in IAQ measurement, monitoring, investigation, and the implementation of an IAQ management programme.
12	<b>Lighting</b>	Understanding of lighting principles, luminaires and their applications, and lighting performance characteristics, including luminous efficacy, colour rendering index (CRI), and correlated colour temperature (CCT). Understanding of workplace lighting standards and guidelines, including SS 531 – Code of Practice for Lighting of Work Places, and the quantity and quality aspects of lighting required for different work activities. Competence in workplace lighting design, evaluation, and measurement of illuminance levels to ensure visual comfort, task performance, safety, and occupational health.
13	<b>Management and Ethics</b>	Understanding of the principles of industrial hygiene management, including the acquisition, allocation, and control of resources to achieve the anticipation, recognition, evaluation, and control of workplace health hazards. Understanding of risk management principles, including risk assessment, risk treatment, and risk communication, as well as incident investigation methods, data management and integration, auditing, policy development, planning, delegation of authority, accountability, organizational structure, and decision-making processes. Understanding of professional conduct and ethical responsibilities, including compliance with the Registered Industrial Hygienist (RIH) Code of Ethics.
14	<b>Noise &amp; Vibration</b>	Understanding of the principles of acoustics and vibration, including the physics of sound and vibration, and the health effects associated with occupational exposure to noise and vibration. Understanding of noise and vibration exposure measurement and evaluation, engineering noise and vibration control, hearing protection, audiometric testing, and hearing conservation programmes. Competence in computations related to the combination of sound pressure levels, octave-band analysis, noise dose, and equivalent continuous sound pressure level ( $L_{eq}$ ). Understanding of vibration transmissibility, vibration isolation, and vibration control principles.
15	<b>Non-engineering Control</b>	Understanding of non-engineering control measures for the prevention and control of occupational health hazards, including the principles governing the selection, use, maintenance, and limitations of personal protective equipment (PPE), such as respirators, protective clothing, gloves, and eye and face protection. Understanding of respirator fit testing, respirator protection factors and assigned protection factors (APFs), breathing air quality specifications, glove permeation and degradation, and the application of administrative controls to minimize worker exposure.
16	<b>Ionizing Radiation</b>	Understanding of the physical characteristics and biological effects of ionizing radiation, including alpha particles, beta particles, neutrons,

		gamma rays, and X-rays. Understanding of radiation activity, exposure, absorbed dose, equivalent dose, and effective dose concepts, including basic radiation dose calculations. Understanding of ionizing radiation measurement and exposure evaluation, as well as the principles of radiation protection, including time, distance, shielding, contamination control, and the application of the ALARA (As Low As Reasonably Achievable) principle.
17	<b>Non-ionizing Radiation</b>	Understanding of the physical characteristics and health effects associated with non-ionizing radiation, including static electric and magnetic fields, extremely low frequency (ELF) electromagnetic fields, radiofrequency (RF) fields, microwaves, lasers, ultraviolet (UV), visible, and infrared (IR) radiation. Understanding of non-ionizing radiation exposure measurement and evaluation, applicable exposure standards and guidelines, and the principles of protection and control to minimize occupational exposure.
18	<b>Thermal Stressors</b>	Understanding of the health effects associated with occupational exposure to heat and cold, including the recognition of signs and symptoms of heat- and cold-related illnesses. Understanding of heat stress and cold stress indicators, exposure assessment methods, and applicable occupational exposure standards and guidelines. Understanding of exposure prevention and control measures, including engineering controls, administrative controls, work-rest regimens, hydration, acclimatization, personal protective equipment, and emergency first aid and medical response.
19	<b>Toxicology</b>	Understanding of the principles of toxicology and the health effects associated with occupational exposure to chemical substances, including single agents and mixtures. Understanding of toxicokinetics (absorption, distribution, metabolism, and excretion), routes of exposure, target organs (e.g., liver, kidneys, lungs, skin, and nervous system), mechanisms of toxicity, dose-response relationships, and the interactions of chemicals, including additive, synergistic, and antagonistic effects. Understanding of toxicity testing principles, aerosol deposition and clearance within the respiratory system, and the recognition of adverse health effects, including allergic reactions, sensory and respiratory irritation, neurotoxicity, carcinogenicity, mutagenicity, teratogenicity, reproductive toxicity, and sensitization.
20	<b>Work Environment</b>	Understanding of occupational health hazards associated with specific industries, manufacturing processes, and work environments. Understanding of the recognition, evaluation, and control of health hazards arising from work activities, including but not limited to confined space entry, spray painting, welding, abrasive blasting, vapour degreasing, foundry operations, hazardous waste management, and indoor and environmental air quality. Understanding of the industrial hygiene considerations applicable to process operations, maintenance activities, and other workplace environments where chemical, physical, and biological hazards may be encountered.