

1.	Name of Course					Engineering and Society							
2.	Course Code					JENS4092							
	JENS = the first alphabet identify the faculty within which the subject is offered., JENS = the remaining three alphabet identify the course that offers the subject, 4092= the first digit identify level of study; in this case undergraduate level, 4092= the second and third digits identify subject identity and 4092= the fourth digit identify credit value or credit hours												
3.	Name(s) of academic staff					To be Assigned							
4.	Rationale for the inclusion of the course/module in the programme					Enable students to know and understand the code of ethics in engineering and relationship with society at large							
5.	Semester and Year offered					2/3							
6.	Total Student Learning Time (SLT)				Face to Face				Total Guided and Independent Learning				
	L = Lecture T = Tutorial				L	T	P/S	O	Independent Study(IS)=56				
	P = Practical S=Studio Works				28	-	-	-	Total= 84				
	O= Others												
7.	Credit Value					2.0							
	Lecture (2 hours per week x 14 weeks)												
8.	Prerequisite (if any)					None							
9.	Course Objectives 1. To provide exposure to professional engineering practice, ethic, management and engineering issues Course Learning Outcomes (CLO) At the end of the semester students should be able to: CLO1: Identify the role of engineer towards development in Malaysia CLO2: Obtain an overview of relationships between science, technology and the environment, including several important environmental issues, the roles and functions of international and local organizations related to the environment. CLO3: Investigate engineering issues and regulations related to occupational safety and health CLO4: Apply the concepts of personal, social and professional ethics, including engineering ethics, to the working environment												
10.	Transferable Skills: This course is expected the development of the following transferable skills: a) Self-management – an ability to manage time and task b) Learning skills - An ability to learn both independently and co—operatively; - An ability to use library skills, to find and organize information ; - An ability to use a wide range of academic skills (research, analysis, synthesis etc.); - An ability to identify and evaluate personal learning strategies. c) Teamwork - An ability to take responsibility and carry out agreed task; - An ability to take initiative and lead other; - An ability to identify and evaluate personal learning strategy. d) Problem solving - An ability to analyse; - An ability to think laterally about a problem; - An ability to identify strategy options;												

	An ability to solve the problems e) Information technologies An ability to use specialist software where relevant to the discipline.												
11.	Teaching-learning and assessment strategy A variety of teaching strategies are used throughout the course, including the following: - Classroom Lessons; Lecturer and power point presentations - Tutorial Session; - Student-Lecturer Discussion - Collaborative and Co-operative learn; - Independent study. Assessment: <table> <tr> <td>Coursework</td><td>40%</td></tr> <tr> <td>Project</td><td>20%</td></tr> <tr> <td>Test</td><td>20%</td></tr> <tr> <td>Examination</td><td>60%</td></tr> <tr> <td colspan="2"> </td></tr> <tr> <td><u>Total</u></td><td><u>100%</u></td></tr> </table>	Coursework	40%	Project	20%	Test	20%	Examination	60%			<u>Total</u>	<u>100%</u>
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<u>Total</u>	<u>100%</u>												
12.	Synopsis: This course provides the student with the knowledge of Technology and Development, Technology and Environment, Engineering Management and Globalization and Ethics and Professionalism												
13.	Mode of Delivery: Lectures												

14.	Performance Criteria :						
	CLO-PLO	Assessment Tool	1	2	3	4	5
	Marks		0-39	40-49	50-59	60-74	75-100
	Grade		(F)	(D,D+)	(C-,C,C+)	(B-,B,B+)	(A-,A,A+)
	CLO1: Identify the role of engineer towards development in Malaysia	Project Test Examination	Fail to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Poor to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Satisfactory to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Good to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Excellent to: - To: Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task
	CLO2: Obtain an overview of relationships between science, technology and the environment, including several important environmental issues, the roles and functions of international and local organizations related to the environment.	Project Test Examination	Fail to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Poor to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Satisfactory to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Good to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task	Excellent to: - Learn both independent and cooperatively - Use library skills, to find and organize information - Manage time and task

	CLO3: Investigate engineering issues and regulations related to occupational safety and health	Project Test Examination	Fail to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Poor to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Satisfactory to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Good to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Excellent to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task
	CLO4: Apply the concepts of personal, social and professional ethics, including engineering ethics, to the working environment.	Project Test Examination	Fail to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Poor to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Satisfactory to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Good to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task	Excellent to: • Learn both independent and cooperatively • Use library skills, to find and organize information • Manage time and task

15.	Mapping of the Programme Objectives to the Programme Learning Outcomes											
Programme Learning Outcomes (PLO) Programme Objectives (PO)		PLO1: Ability to acquire and apply knowledge of science and engineering fundamentals;	PLO2: Acquired in-depth technical competence in civil engineering discipline;	PLO3: Ability to undertake problem identification, formulation and solution;	PLO4: Ability to utilize systems approach to design and evaluate operational performance;	PLO5: Understanding of the principles of design for sustainable development;	PLO6: Understanding of professional ethics, Islamic values, social, cultural, global and environmental responsibilities of a professional engineer and commitment to them;	PLO7: Ability to communicate effectively, not only with engineers but also with the community at large;	PLO8: ability to function effectively as an individual;	PLO9: Ability to function effectively in group with the capacity to be a leader or manager;	PLO10: Recognizing the need to undertake lifelong learning, and possessing /acquiring the capacity to do so;	PLO11: ability to become Entrepreneur;
PEO1: To produce graduates with proficient knowledge and competency in various areas in Civil/Electrical/Mechanical Engineering		✓	✓	✓								
PEO2: To produce graduates with professional, generic attributes to meet the present and future global demands.					✓	✓	✓			✓	✓	
PEO3: To produce graduates with Islamic humanistic values and reinvention skills to meet the requirement of a dynamic environment. These skills include Civil Intelligence, Moral Intelligence, Self-Reliance and Communication Skills								✓	✓	✓		✓

16.	Mapping of the course Learning Outcome to the Programme Outcome										
Programme Learning Outcomes (PLO) Course Learning Outcome (CLO)	PLO1: Ability to acquire and apply knowledge of science and engineering fundamentals;	PLO2: Acquired in-depth technical competence in civil engineering discipline;	PLO3: Ability to undertake problem identification, formulation and solution;	PLO4: Ability to utilise systems approach to design and evaluate operational performance;	PLO5: Understanding of the principles of design for sustainable development;	PLO6: Understanding of professional ethics, Islamic values, social, cultural, global and environmental responsibilities of a professional engineer and commitment to them;	PLO7: Ability to communicate effectively, not only with engineers but also with the community at large;	PLO8: ability to function effectively as an individual;	PLO9: Ability to function effectively in group with the capacity to be a leader or manager;	PLO10: Recognising the need to undertake lifelong learning, and possessing /acquiring the capacity to do so;	PLO11: ability to become Entrepreneur;
	CLO1: Identify the role of engineer towards development in Malaysia	✓									
	CLO2: Obtain an overview of relationships between science, technology and the environment, including several important environmental issues, the roles and functions of international and local organizations related to the environment.	✓									
	CLO3: Investigate engineering issues and regulations related to occupational safety and health	✓	✓	✓							

	CLO4: Apply the concepts of personal, social and professional ethics, including engineering ethics, to the working environment	✓	✓	✓								
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17.	Content outline of the course/module and the SLT per topic						
		Details	SLT (Hour)				
			L	T	P	IS	Total
	Topic 1	Science, Technology and Development History of Science and Technology. Indicators of development, and the role of science and technology. The contribution of the Government to the process of development and the Malaysian experience in the process of economic development (1st - 9th Malaysia Plans, successes and setbacks). Limits of growth, appropriate technology and a new world of science and technology.	2	-	-	4	6
	Topic 2	Science, Technology and Environment Disruption or enhancement of environmental quality through science and technology in relation to air, space, water, land, populations, agriculture, industry, wild life, human settlements, culture and education. Roles and functions of international and local organizations related to the environment, Environment Management Standard ISO 14000, Malaysia legislation on environment; Environmental Quality Act 1974, Environmental Impact Assessment (EIA), National Environmental Policy, Environmental and the Malaysia Plan, Achievements of science and technology in upholding our environment.	8	-	-	16	24
	Topic 3	Engineering Management and Globalization Introduction to Engineering Management and Innovation. International Cultural Issues. International Treaties, World Trade Organization (WTO), General Agreement on Trade in Services (GATS), Free Trade Agreements (FTA), Mutual Recognition Agreements (MRA), Washington Accord.	8	-	-	16	24
	Topic 4	Engineering Safety Engineering safety and health. Occupational Safety and Health. Regulation: Occupational Safety and Health Act 1994 (OSHA). OSH Training, Activities and Awareness, National Institute of Occupational Safety and Health (NIOSH).	6	-	-	12	18
	Topic 5	Ethics and Professionalism Theistic and secular concepts of personal, social and professional ethics. Codes of conduct of engineers. Motivation, control, responsibility, rewards and accountability of engineers and development of an ethical engineering professionalism. Board of Engineers and Engineering Societies.	4	-	-	8	12
Total (Hour)		28	-	-	56	84	
18.	Main references supporting the course 1. Ethics and Professionalism in Engineering (Broadview Guides to Business and Professional Ethics) - Paperback (Mar. 22, 2011) by Richard H. McCuen and Kristin L. Gilroy 2. Engineering Ethics: Concepts, Viewpoints, Cases and Codes - Paperback (2008) by Jimmy H. Smith, National Institute for Engineering Ethics, Texas Tech University Murdough, Center for Engineering						

	Professionalism College of Engineering, Patricia M. Harper, et al.
	Additional references supporting the course 1. Foong Pek Ling, et al, "Engineering Professionalism and Ethics", IEM, Malaysia, 4th Ed., 1995
19.	Other additional information All materials will be available to the students in the library.